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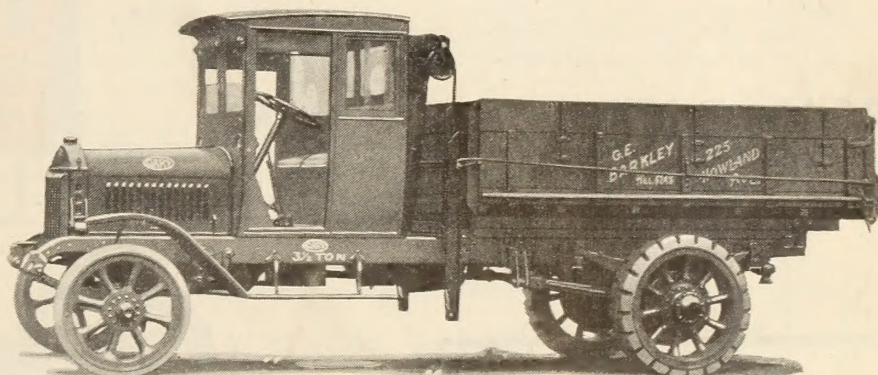
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A motor truck of proved merit—an outstanding success in the United States—and the most efficient low-down three-wheel Kerosene-burning tractor on the market! And these two manufactured in one of the largest plants of its kind in the British Empire.

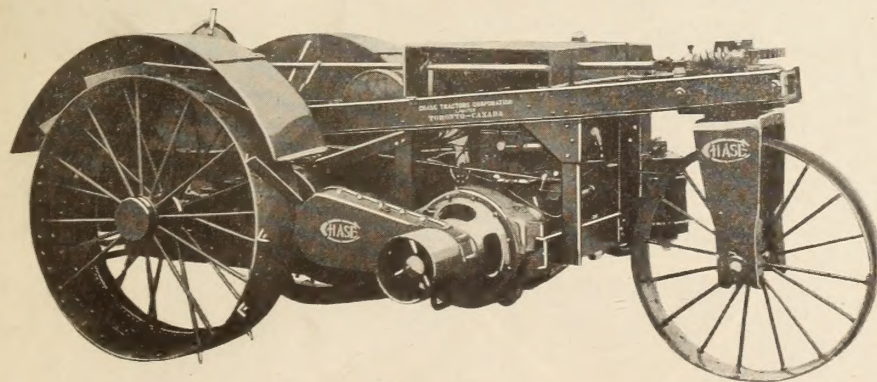
This is the combination a "Gary" Agency offers you, a combination that for sales possibilities, profit and general all-round satisfaction could hardly be equalled. It will appeal particularly to dealers who look to farm communities for a share of their business.



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Sit down right now and write for it



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Let us tell you of the new features in this truck and tractor that make for simplicity and economy of operation, reliability and long service.

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GARY MOTOR TRUCK CORPORATION OF CANADA, LIMITED

27 ATLANTIC AVENUE, TORONTO



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The Universal Parts Catalog is a necessity to every dealer. It gives complete information and prices on replacement parts for every standard battery. It is indispensable as a daily reference book. Write now for your copy.

Price reduction on Batteries and Parts effective Jan. 1, 1922.

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**UNIVERSAL
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The Original Sealed Glass Cell Battery

The Universal Battery Co. made the first and original Sealed Glass Cell Batteries for Farm Light and Power Plants.

There is a Universal Battery for every farm light plant—a Universal Part for every make and size battery.

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The Whitney Price Announcement Hit the Farmer Where He Lives **\$595 Complete**



Brief Specifications

Power—9 H.P. on drawbar; 18 H.P. on belt.

Dimensions—Length, 123 in.; width, 56 in.; height, 58 in.

Weight—Domestic shipping, 3,000 lbs. Boxed for export, 3,900.

Transmission—Selective, 3 forward—1½, 2½ and 4 miles per hour. Reverse, 2 miles per hour. All gears forged steel cut and hardened running in oil.

Motor—2 cylinder opposed type. 5½ in. bore, 6½ in. stroke, 750 revolutions per minute.

Governor—Whitney special fly ball type. Enclosed, gear driven.

Pulley—Direct, driven from crankshaft. Size, 11 in. diameter by 6½ in. face. Clutch, controlled. Pulley, regular equipment.

Fenders—Pressed steel over rear wheels. Regular equipment.

Fuel—Gasoline or kerosene.

The Whitney is a sturdy, time-tested, field-proven, two-plow tractor with the traction, strength and reserve power found in the best of the two-plow jobs built. Number of plows recommended for use with Whitney, two 14-inch size; thresher recommended, 22 in. x 34 in. The Whitney has not been "rated up." Instead it has been under-rated. The Whitney sells for \$595 complete with belt, pulley, fenders and governor—no extra parts to buy—F.O.B., Upper Sandusky, Ohio.

LAST MONTH Whitney announced a new, unparalleled price on the Whitney Tractor—**\$595 Complete**—no extras to buy. *Did it hit the farmer where he lives? It did.* Thousands of farmer letters poured into the Whitney office. Hundreds of inquiries from dealers and distributors have come in. It has thrown the Whitney office force "on high" to care for them.

The farmer is thinking Whitney. He's buying the Whitney! He knows the Whitney by reputation. He knows that the present low-price Whitney is the self-same, proven outfit that formerly sold for \$1175. He knows that it is only through big scale production that Whitney has been able to turn out the same machine for \$595—a standard, medium-size, proven tractor at a price he can afford to pay. That's what he has been waiting for. *That's the Whitney!*

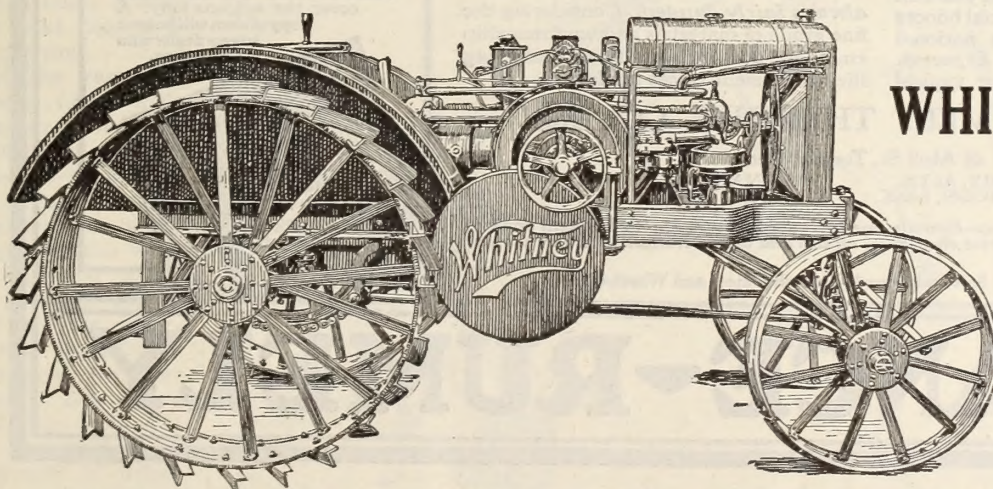
Whitney TRACTOR

When the farmer buys the Whitney he buys the lowest-priced, standard, 2-plow outfit on the market. But he buys more than price. He buys a "known-quantity" machine with a clean record of performance. He buys a dependable outfit that will put through any power job on the average farm. *A real-job tractor at a real price—\$595 F.O.B., Upper Sandusky, Ohio.*

Your tractor prospects are going to ask you about the Whitney this Spring. Only a Whitney on your floor will answer them. The \$595 price will clinch the sale. This lowest-priced tractor offers the biggest value and most profitable sales opportunity in years. Your territory may still be open. A card to us will bring complete information. Write to-day.

WHITNEY POWER FARMING PRODUCTS

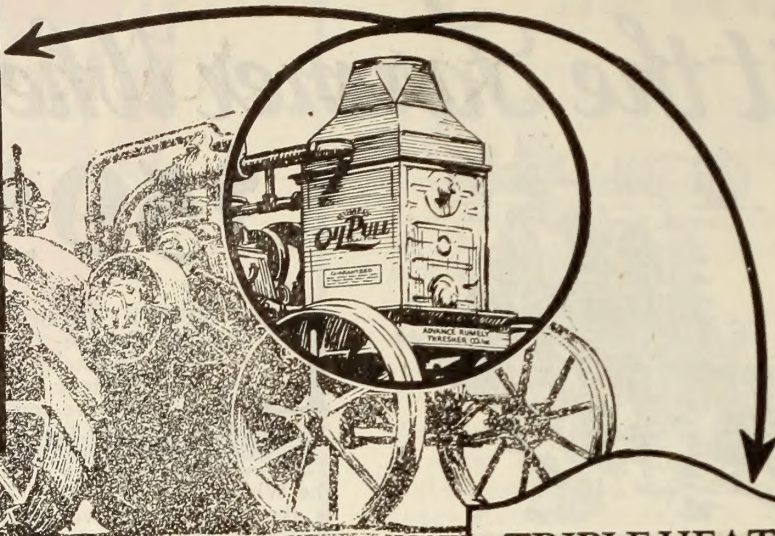
Remember with the Whitney Tractor you can sell the Whitney special 2-bottom, 14 in. power lift plow made for us by the Vulcan Plow Company—Price \$105, and the Whitney Special 7-foot double-disc harrow made for us by the Roderick Lean Mfg. Co., Price, \$100.



THE WHITNEY TRACTOR COMPANY

2707 Prospect Ave.,
CLEVELAND, OHIO

- ① Lowest Fuel Cost
 - ② Lowest Upkeep Cost
 - ③ Longest Life (10 Years and More)
- and Reasonable Price



On Selling the Only Tractor that Combines All Four Elements Necessary to Cheap Farm Power

You know why some farmers have not bought tractors. Some have thought the fuel cost too high. Others have questioned the "upkeep" or repair expense. Others have thought that the cost per year for depreciation was quite high.

Thousands of these farmers will buy tractors when they are satisfied on these points. And they will be fully satisfied when they are given the facts about the

OILPULL TRACTOR

"The Cheapest Farm Power"

The Four Factors absolutely essential to long, dependable, cheapest power service are: (1) Lowest Fuel Cost; (2) Lowest Upkeep Cost; (3) Longest Life; (4) Reasonable First Cost. The OilPull combines all four for the first time in any tractor.

Look at the OilPull records:

(1) **Lowest Fuel Cost.** For ten years an OilPull has won the highest official honors for low fuel consumption in national tests. (2) **Lowest Upkeep Expense.** Investigations made of many typical

OilPulls, of all ages, show upkeep expense averaging, per year, 50% less than the national average given by the government. (3) **Longest Life (10 years and more).** Thousands of OilPulls have given over 10 years of service. "Old Number One" is still serviceable after 12 years of use. (4) **Advance-Rumely Prices are always fairly gauged.** Considering the fine grade of materials and workmanship employed and the low upkeep and long life, the present prices are low.

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CALGARY, ALTA. REGINA, SASK.
SASKATOON, SASK. WINNIPEG, MAN.

(68)

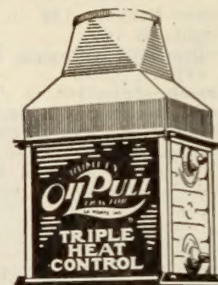
The Advance-Rumely line includes kerosene tractors, steam engines, grain and rice threshers, alfalfa and clover hullers, and farm trucks

Serviced from 29 Branch Offices and Warehouses



ADVANCE-RUMELY

TRIPLE HEAT CONTROL The Chief Reason



OilPull success is due to two things: (1) The high quality of OilPull design and construction. (2) **Triple Heat Control**, used on all OilPull tractors. **Triple Heat Control** is a scientific Oil-Burning system which finally solves the problem of getting the tremendous power out of kerosene. Positively controls temperatures. Motor can't freeze or overheat.

FREE BOOK to Any Dealer Who Writes

Every dealer who feels he is equipped to properly represent the OilPull should know all about the Four Factors and Triple Heat Control. Our new booklet, "Triple Heat Control," and our catalog cover the subjects fully. A copy of each will be sent to any dealer who writes.



CANADIAN MOTOR, TRACTOR AND IMPLEMENT TRADE JOURNAL

Volume 4

TORONTO, JANUARY, 1922

No. 1

WHAT DOES 1922 HOLD IN STORE?

This Year Will Reward the Workers. Business Will Be Got But It Will Have To Be Dug For Deeply. Dealers Must Be Careful About Extending Credit. The Signs Indicate Business on the Upward Swing

THE question most frequently on the lips of everyone connected with the automotive and farm machinery industries, is: What does 1922 hold in store for the sale of automobiles, trucks, tractors and implements? This question can best be answered by saying: It holds as much for these industries as they are willing to put into it.

The conditions existing at the opening of 1922 are not a great deal different, so far as actual selling is concerned, from those that existed at the opening of 1921. We said then that business would be done by the workers. And the workers did turnover a fair amount of business. We again repeat that there is good business waiting for workers—those go-getters who, undeterred by the gloomy mouthings of the pessimists during 1921, went out and did the things which men said were impossible. They saw something which was not supposed to exist and went forth and claimed it for their own.

This year won't be a bed of roses. There will probably be many casualties, but the hard workers, and those who have put their business on a sound basis will come through with pennants flying.

THE year just gone was an exceedingly trying one for the automotive and farm machinery industries. Dealers and manufacturers alike heaved a sigh of relief at its passing.

At the beginning of the year the automotive industry was faced with discouraging circumstances. Business over the last half of 1920 had slumped severely and production not being curtailed quickly enough a large surplus of unsold cars were allowed to accumulate. Many manufacturers too were stocked up with raw material which had been purchased at peak prices. The liquidation of both the raw materials and finished material inventories presented a difficult problem. However the automotive industry has made rapid progress in whittling down and balancing inventories, the writing off of losses and the payment of debts. Prices of automobiles have come down to meet the new financial capacity of the buyer.

Another encouraging feature of the situation is that the larger manufacturers are getting ready to increase greatly their production in 1922. Manufacturers are also buying equipment for new cars for spring delivery in larger quantities than last year, which indicates that stocks have been disposed of and the

manufacturers are now preparing to produce for current business.

THE worst period has been passed, and the industry can now be said to be on the upward swing. The up-swing will be gradual and competition will be keen. There will be no room for the order-takers. Hard selling will be the rule and the intelligent seller and go-getter will be the men who will do the business. Old methods will be taboo. Business men must get down to fundamentals. The buyer has got to be sold. He will place his orders where the service is.

The purchasing power of the country is less than it was a year ago. Particularly is this true in the agricultural districts. The farmers' purchasing power

the National City Bank of New York says:

"The fundamental difficulty that has existed all through this year, that is, the disparity between the price of farm products and all raw materials and the price of manufactured goods, continues to hamper the return of industrial activity. Half of the population continues to have its buying power so seriously curtailed that any general improvement in trade while this condition obtains is out of the question."

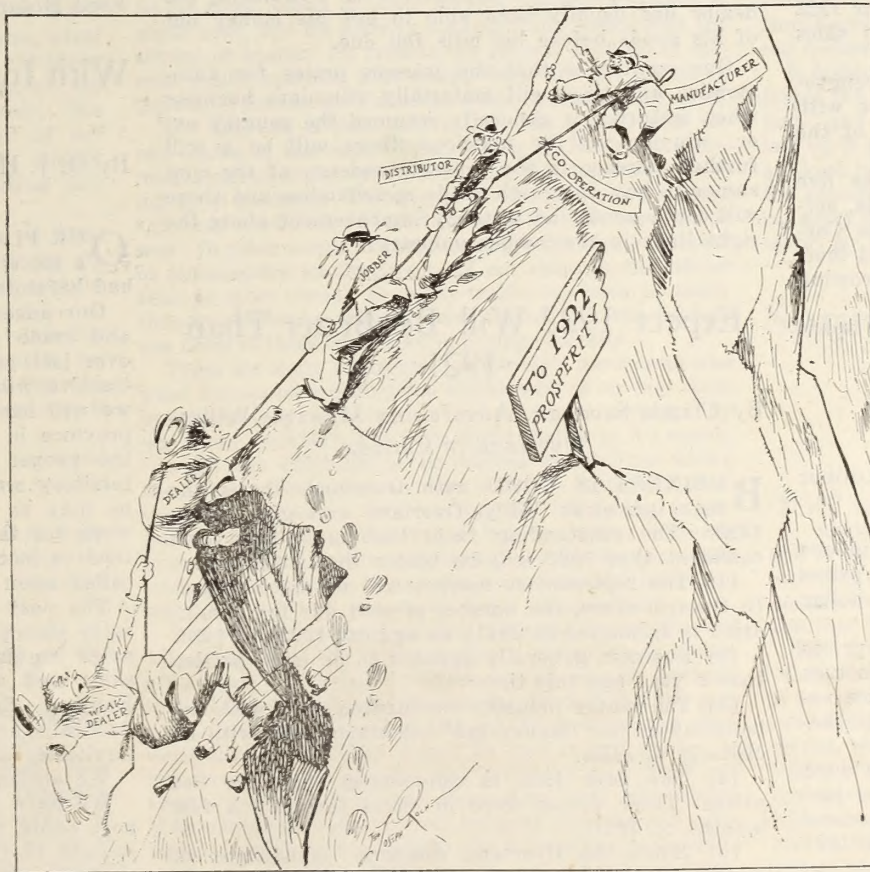
The farm will not be in a position to buy beyond the bare necessities, until he has a surplus of cash. He will have no surplus until his debts are paid which means until another successful crop is harvested. That holds true of the average farm in Canada today.

IN VIEW of these facts dealers will have to be very careful in extending credit. Business should be conducted on a cash basis as far as possible. Particularly is this true in connection with the farm machinery industry. There is a great need for all kinds of farm machinery, especially in the West and because of that need and the farmer's low buying power dealers must go carefully. The temptation to unload goods on a time payment basis will be great. Such sales should only be made after the most careful investigation into the financial ability and reputation of the buyer.

Implement dealers in the West had a harder row to hoe than their brothers in the East. The fall in prices of farm products affected the West to a much greater extent, owing to the fact that wheat was the greatest sufferer in the price decline and is the Western farmer's basic crop. The practice of the Ontario and Quebec farmers of operating largely mixed farms gives them a greater margin of security.

WHILE conditions in both the automotive and farm machinery industries were difficult in 1921 the amount of business actually done was not inconsiderable when the prevailing economic situation is taken into consideration.

Both industries start the new year on a better footing. Lower prices will reduce sales resistance and tend to start buying on a healthier basis. Business generally in the country is improving. The exchange situation is easing and there is plenty of evidence that there is credit for legitimate enterprises at lower interest rates.



A long pull, a strong pull and a pull all together.

—Motor World.

er is estimated at about 50 per cent. of normal. Farmers are unable to pay their debts, consequently the amount of goods they will purchase this year will be small. Discussing this point in a recent survey

Manufacturers are Making Plans For Bigger Business in 1922

Advertising Will Be Necessary in 1922

By E. A. Soulier, Canadian Lamp and Stamping Company

AFTER A CAREFUL study of the 1921 conditions as compared with 1920, it is logical to believe that business is fast returning to normal and that 1922 will be a good year so far as the automotive industry is concerned. Unlike any other industry the automotive has never been on an equal footing. Prior to the world war when this industry was still in its infancy an automobile was considered a luxury. Regardless of the fact that the war hampered the manufacture of motor cars to a great extent and caused prices to be greatly increased the automobile is now considered an indispensable commodity and the present reduced prices and more settled conditions will give this industry a footing it has never had.

This does not mean, however, that the so-called method of "taking" orders will be in vogue. It will be necessary to advertise, it will be necessary to sell and as the trade magazines will contain information as to new lines, as well as established lines, these should be closely followed in order to get the full benefit intended by the manufacturers who will use this medium of advertising their goods to a greater extent than in the past.

Have Made Arrangements With a Bank to Help Dealers Finance

By A. R. Erskine, President Studebaker Corporation

PUBLIC CONFIDENCE in the quality and value of their product made it possible for The Studebaker Corporation of Canada, Limited, Walkerville, Ontario, to increase by 65 per cent. in 1921, its sales of the previous year. For the same reason this company has laid out a production program for 1922 which is 50 per cent. greater than Dominion sales for 1921.

The company will continue to expand and strengthen its dealers' organization and to co-operate with dealers in securing an increasing percentage of the business done in their respective territories.

Arrangements have been made whereby the five hundred branches of the Royal Bank of Canada, acting as fiscal agents for the Industrial Finance Corporation, will serve Studebaker dealers who find their working capital inadequate for rapidly growing business.

Hard work by dealers, and the co-operative spirit will make 1922 another good year.

Buying Will Be Judicious

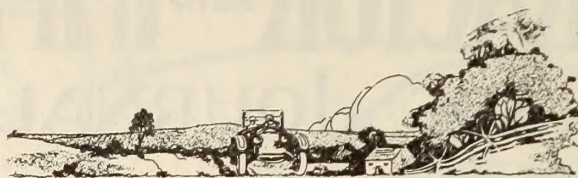
By O. C. McCarthy, Goodyear Tire and Rubber Company

WE ARE NOT anticipating a contraction in our 1922 business, except insofar as lowered prices for our product may mean a reduction in the dollar and cent volume.

For the last eighteen months the consumer prices on tires and other rubber goods we manufacture have been steadily reduced in a series of price reductions that have brought present prices well below pre-war prices.

While many operating and selling economies were introduced during the deflating period we have just passed through, our selling staff for 1922 will stand substantially as it was at the close of our 1921 Fiscal Year.

No special means are necessary on our part to assist in financing dealers. As we approached the peak of high prices we advised our dealers to diminish the amount of stock they carried on hand, and to purchase their requirements on a basis of thirty to forty days' supply. This has enabled our dealers to get through the deflating period with very little loss on goods purchased at high prices. And inasmuch as the tendency in our tire retail business has been



WHAT THE MANUFACTURERS THINK OF PROSPECTS

ON THIS PAGE we publish short articles from a number of manufacturers setting forth their views regarding business prospects for this year.

Believing that our readers are interested in what the manufacturers are going to do in 1922 to stimulate business in their particular field, M. T. I. asked the leading manufacturers the following questions:

To what extent will your 1922 selling staff compare with that of 1921? What form of consumer advertising will you adopt so that dealer's sales will be made easier? Have you any scheme to assist your dealers to finance?

It is gratifying to note that all the letters received—a large number of which came too late for publication—state that greater efforts will be made this year, and express the belief that business will be much better than in the year just gone.

to do business on a cash basis with consumers, the dealer has usually been able to get his money out of his goods before his bills fell due.

Our opinion is that the present prices for automobiles and tires will materially stimulate business when motoring is generally resumed the country over. Buying will be judicious, there will be a still further increase in the present tendency of the consumer to buy only high-grade merchandise and there will consequently be a steady improvement along the right lines in the rubber industry.

Expect 1922 Will Be Better Than 1921

By Claude Sanagan, Advertising Manager Willys-Overland of Canada

BUSINESS IS GOOD with Overland—that's the best indication Willys-Overland can give as to 1922. The outstanding facts that make this firm confident that 1922 will be better than 1921 are:

(1) The replacement market will be much larger. In Ontario alone, the number of cars due for elimination is estimated at 29415 as against 12029 in 1921.

(2) Business generally appears to be more settled than a year ago this time.

(3) The motor industry commenced 1921 with the handicap of the "luxury tax"—it starts 1922 with no obstacle to sales.

(4) The year 1922 is commenced with low list prices. These prices were in effect for only a few months of 1921.

(5) Since the Overland company announced in September that it was now "all the way back to pre-war prices," its sales increased materially. In the

United States, too, business is good with Overland, having "come back" with astonishing force.

(6) Christmas business in closed cars has been especially good in the cities.

(7) The recent addition of numerous new Overland merchants enlarges this company's opportunities for making 1922 a year of good business.

(8) Whereas in the winter of 1920-21, but few orders were booked for spring deliveries, the experience of 1919-20 is now being repeated, dealers in various parts of the country having reported spring delivery orders for a month past.

Service Will Be Outstanding Feature

By G. M. McGregor, Vice-president and Treasurer Ford Motor Company of Canada

SERVICE will be the outstanding feature of the Ford Motor Company of Canada, Limited's, sales campaign in 1922. It is our belief that the dealer who keeps Ford products sold will reap a greater harvest than the dealer who merely sells Fords.

With an increasing public trend towards economy in purchase, this company looks for greater sales of the low priced car in the next twelve months than in any previous year and, credits now having been restored, anticipates an unprecedented growth in export business.

Extension rather than diminution of the sales force is likely and there will be no retrenchment in national advertising or in other aids to dealers.

A regular house-to-house canvass for prospects is being undertaken and by spring there should be no home in Canada left unvisited.

There will be an intensive direct-by-mail campaign and every dealer is being supplied with an abundance of such matter for distribution.

As regards financing, dealers are advised to take advantage of the wholesale and retail plans of established financing firms when an extension of working capital is called for.

—G. M. McGregor, Vice-president and Treasurer, Ford Motor Company of Canada.

With Increased Advertising Expect to Increase Sales

By O. J. Hayes, Sales Manager Champion Spark Plug Company of Canada

OUR PLANS are practically complete to carry on a more intensive selling campaign than we have had heretofore.

Our advertising appropriation, both in newspapers and trade journals, will be increased considerably over last year. We will also supply the dealer attractive window displays and cut outs. In addition we will have an efficient sales staff, covering every province in Canada by car, educating the dealer on the proper type plugs to stock in his particular territory and will assist the dealer in any way that he may be called upon. We have been doing this work for the past five years in Canada, but we intend to increase our staff so that the dealer can be called upon oftener.

The past year has been very satisfactory from a sales standpoint. Not only did we keep our present sales organization together, but we increased our sales staff and placed a large sales organization in England, Scotland, Ireland, Wales, New Zealand, Australia and India. All orders received from these territories are shipped from this factory.

We anticipate a large increase for 1922.

We have just completed a careful analysis of report cards, received from our salesmen, covering all dealers in Canada and from these reports, we find that the majority of dealers do not hesitate to state that prospects are very bright and are improving. The number and size of orders that we have secured from the dealers for spring delivery proves, beyond question of a doubt, that optimism has now taken the place of pessimism.

We are satisfied that big business is to be had in 1922 and with the campaign that we have outlined to assist the dealer, we are making preparations to take care of the increased demand.



What Other Dealers Think of the Outlook for 1922 Business

These Dealers are Confident of the Future of the Automotive Industry. They are Full of Ideas for Getting Business. Read This Page Carefully.

By ROY A. HUNTER, M. T. I. Correspondent

"WHAT'S the outlook for business?"

"I feel that the outlook for business is good, because the past year, in spite of dire predictions about it, has been very fair; yes, very, very fair," said L. H. Dwinell, sales manager for Knight-Higman Motors, Vancouver, when asked by M. T. I. what he thought of the prospects for 1922. "Of course we did not make the money we ought to have made. The fact that we had to take 'lickings' three times on our stock, due to price reductions (Ford cars) killed the profit showing that the end of the year should have produced.

"However, business was done, and is being done on our floor every day.

"November, December and January are always the quiet selling months in B. C. This year we are keeping our shop busy, and will continue to do so till spring, by reducing our charges for complete overhaul to \$30 for labor.

"Another thing we are doing that has registered a hit with Ford owners, is a flat rate for each job, labor only. We cannot tell a man, of course, what needs to be replaced in the rear end of his car, but we will give him a flat rate on the labor involved, and show him the parts that need replacement. This definite figure on all repair jobs is deservedly popular.

"On all our cars, the Standard Warranty is given, and in addition we give our guaranty for thirty days on any labor required on a car. We give a certificate to this effect with all new cars.

This Stunt Sells Automotive Equipment

"Another thing that helps to keep volume up, is this. We take the Ford coupe and other enclosed models, have them painted in special colors, fit them with shock absorbers, bumpers, extra vision wind shield shades, motometres, racing radiator caps, steel disc wheels, detachable steering wheels, cut-glass flower vase, etc., and you would be surprised at the number that we sell complete, as they stand. We sometimes sell three hundred dollars' worth of accessories and equipment with one new car, simply by showing the accessory ON the car. Extras pay the rent here.

"Recently we ran a special week's display of closed models. We scored several direct hits and the effect of the demonstrations made cannot be said to be over yet.

"Money will be spent here in the spring. Lumber markets are stiffening up, which mean prosperity for B.C. Shipping is busy, especially outbound for the Orient. The wheat movement through Vancouver is an assured fact.

"The tourist traffic is greater every year; the good roads and magnificent scenery bringing the monied tourists in increasing numbers.

"All dealers in the smaller cars can increase their sales among the owners of large cars, selling the small car for use in the dirty weather when the large car might not be taken out of the garage."

This Dealer Would Like to See Bankers Sold on the Car as a Utility

"The business outlook is good," says J. W. Henry, manager of the Dominion Motors, Vancouver.

"At the moment buyers are wary. Prices have come down on some cars and the car buyer generally has the idea that the reductions will be general. If a decline becomes effective, the prospective buyer is determined that the manufacturer and the dealer shall stand the loss, and not he.

"If there is going to be no decline, the manufacturers are the ones who will have to convince the public of this. Until the buyers feel more confident that they are not buying on a falling market, they will put off their purchases for a while yet, but with any indication of permanence, or if a decline should become effective, I have a large number of prospects who are DEAD SURE PURCHASERS in the spring.

"The B. C. folks are surprisingly backward in realizing the advantages of the closed car. A few more are being sold than formerly, but not in anything like the proportion that is reported from the east and the south.

"I should like to see the various manufacturers make an effort to sell the Canadian bankers on the idea that a car is not merely a luxury and an extravagance. The manufacturers were to blame, for several years, in putting so much STYLE effort into their sales. A new and radical model every year did not strike the financial man as a good business buy for his client. Now that the manufacturers are steady down, they would do well to educate the banker afresh."

Mr. Henry concurred in Mr. Knight's statement to M. T. I. that about 85% of the car sales in B. C. today are time sales. Also in the statement that the losses on car paper are only a small fraction of one per cent; and a very small fraction at that.

According to Mr. Henry, the fact that they do a storage business also, gives them an excellent opportunity to meet more car owners and provided a

valuable point of contact with a view to future sales of new cars.

Mr. Henry included five tires, a motometre, a bumper, and a fancy radiator cap as standard equipment on the cars sold, including their cost in the total price quoted.

The dealers speak as though they expected that, instead of any sweeping price reductions, the manufacturers would put better value into the cars; some price reductions are expected, however.

The Vancouver Automobile Dealers' Association is at present conducting a co-operative campaign in the Sunday newspapers, designed to direct the repair business to the more firmly established repair establishments. A few of the points stressed are: Complete equipment, greater interest in the special cars, specialized mechanics, guaranteed parts, financial responsibility.

"There are one hundred and fifty repair shops in Vancouver," said Mr. Henry. "The repair shops that compose our association are permanent institutions. Like the street cars, they are almost compelled to give service in good times and bad, and merit the support of the automobile owner."

Doing a Spring Business Now

By H. A. BRITTAIN, Mgr. Just Motors, Montreal

IT IS NOT only regrettable but seriously disastrous to the automobile merchandizing men thruout Canada, that the automobile selling season automatically stops with the early fall chilly winds. The fact of the matter is, there is no real reason for this situation. Beginning first with the automobile dealer, as soon as the first of September arrives, he for some reason or other regards the selling season as about over, and his activity automatically ceases with the advent of winter. He reflects the general attitude of current public opinion, that automobiles are not usable in the winter time in our Canadian cities, both large and small.

The question is then, is it a fact that automobiles are not usable in the winter time, and is the dealer or automobile salesman correct in accepting this automatic slowing up of business? The answer to the question is simple. One only need observe—and one usually believes what he sees. In other words, is there an appreciable lesser number of automobiles on the streets of our cities in the winter than at other times? Does the traffic cop have an easier time in the winter than at other times? Let the dubious one observe these conditions and judge thereby.

There are many prospective automobile purchasers who want automobiles during the winter who never buy them because of that old time idea that winter and automobiles don't run together. The fact of the matter is, it's merely this old idea which limits the business possibilities during the winter. The salesman who takes the statement from the prospect that he will buy but not till spring, is also putting obstacles in the way of healthy winter business. It is true of course that the average good salesman wants to do all the business he can, for himself and for his house, but in spite of this, the winter bogey shackles him.

The writer is aware of course that in the far out districts where there is little if any traffic, a motor car is useless after a heavy snow fall. It is true that where snow becomes several feet high automobiles cannot be used, but the purpose of this letter is to deal with conditions where the argument that automobiles cannot be used is entirely out of line because of the fact that they are being used NOW, all winter, and have been ever since there were automobiles. If the majority of automobiles are used all winter, all automobiles can be used all winter. And therefore, automobiles can be sold all winter. It is up to the automobile merchant, the salesman and the buyer to quit hanging onto the fallacy, that "winter's coming—it's time to quit doing business."

Another attitude the prospective owner is prone to take is that of waiting till spring. Very often, and especially in these times, he will say that it's better for him to wait because there will be a reduction in prices. These obstacles to business have no right to enter into the situation. The question is, has the prospect any use for an automobile and

has he the slightest desire to own one. Assuming that this be the foundation for an interview in the first place, what right has the question of price reduction to enter the sales argument, since the reduction, if any, cannot be more than a very small percentage of the investment? In other words, is it more profitable, or more satisfactory to the owner to have an automobile all winter and use it, or go without it from September to May because he may save about a hundred dollars?

It behooves the automobile merchant and salesman to forget the winter bogey, forget the "put it off till spring idea" and point out to the prospect the number of cars laid up in the winter is so small in proportion to those that are kept running that it must not be considered. Finally, the chances are ten to one that said prospect will use his car every day in the year after he gets it, and will even boast about so doing.

Spring Business Can Be Got by Canvassing

By L. E. ALLO,
Ginsberg Motor Co., Montreal

THE stimulation of winter business can be brought about principally by hard work on the part of each and every salesman. The winter and early spring months are ideal for canvassing and there is no reason why prospective buyers cannot be induced to purchase during this time both for immediate and spring deliveries.

Every year now sees our winters more open than previously and our principal argument on winter canvassing is for prior delivery when cars are at a premium as it is only fair to deliver cars in the rotation that orders are received, which applies to the spring months when every dealer is short. It has been proven many times that anyone placing an order in the fall for spring delivery will take his car out during the winter when a fine spell of weather is on. In this way we might count it as one extra sale for the winter months.

Dealers should endeavor also to keep as many salesmen as possible on the road with closed cars during the winter months for after all, if the salesman himself knows and believes that winter driving is practical he will convince his prospective buyer of the fact also. In short, it all simmers down to the fact that if we want more winter and early spring business, we can get it by canvassing. More canvassing means more prospective buyers, and the more prospective buyers, the more orders you will close.

Increase Your Profits This Year Without Adding to Overhead

Automotive Equipment When Properly Merchandised Can be Made One of the Best Profit Producers for the Dealer—the Business is There for the Taking—"Ask 'Em to Buy" and Watch Your Profits Grow.

By RAY W. SHERMAN

stock investment are necessary. If developed to the maximum the profits of this department can be made most attractive.

Opportunities for Sales Unlimited

Opportunities for the sale of this merchandise are unlimited. The customers who come to the gas pump all need automotive equipment. The men who bring their cars for repairs and service can be sold articles that their cars need. Sales can be made over the telephone. For instance a man brings his car in to have the valves ground and carbon cleaned. It may be found that his pistons are pumping oil due to faulty rings. Call the owner up, tell him of the condition of his motor and suggest that he have new rings put in which will overcome this trouble. He will appreciate the interest you show in him and in his car and in nine cases out of ten will tell you to put in the rings.

Garages catering to storage customers can have their men look over the cars during the night. Test the horns, look for broken headlights, or bad bulbs, see that the spare tires are in good condition and fully inflated. Where a spare rim is found without a tire or with a blown-out tire on it there is an excellent opportunity for the sale of a tire and tube. Dealers who look for the defects in the cars stored with them and suggest to the owner the purchase of the article which will remedy this defect can develop this most profitable department of their business.

No special knowledge is required in order to make sales of this merchandise. Anybody can sell. The following instances will show how easily these sales are made and that it is purely a question of "Ask 'em to Buy."

In looking over the cars that stop at the pump for gas you will frequently find tires that are not inflated to the proper pressure. One dealer found the following conversation brought him a good profit for a moment's conversation.

DEALER: "Your right rear tire looks a little soft. Have you a tire gauge?"

OWNER: "No, I haven't."

DEALER: (Taking bill in payment of gas) "I'll bring one out and test that tire." (Goes for change and brings back gauge, tests tire and inflates it to full pressure). "Running on soft tires breaks down the side walls and shortens the life of your tires. One of these gauges tells you just how much you have. Tires fully inflated deliver maximum mileage. It costs only a dollar and a half and pays for itself fifty times over on the first set of tires."

OWNER: "How do you use it?" (Dealer shows him, tells him necessary pressures, etc.) "All right, I'll take it."

Another dealer specialized on rainy days. After giving a man gas, he would take a chamois out of his pocket and wipe the windshield.

OWNER: "Oh, don't bother! She'll be all smeared up again in a minute."

DEALER: "Why not let me put on a windshield wiper? You can give it a swing every few minutes and save yourself a lot of inconvenience, possibly avoid an accident."

OWNER: "How much are they?"

DEALER: "Only two dollars, and it may save you a serious accident."

OWNER: "Put it on."

Think it over and try it out. It won't cost anything to try and if tried long enough it will undoubtedly result in larger profits.

The profit on an hour of labor in the shop is small. Furthermore, you know beforehand almost what it is going to be. But you never can tell how great will be the profits in a few minutes of sales conversation with the car owner. Five minutes of sales conversation may bring more profit than hours of shop labor. Try it. "Ask 'em to Buy."

Competition is not keen. If a man is in the market for a car, for a house or a piano half a dozen salesmen are chasing him in an endeavor to secure the order. Expense accounts are run up and when finally one of the men makes a sale the remainder have to write off their expense accounts to profit and loss. This expense is not necessary in the sale of automotive equipment. When the prospect has purchased a car, a house or a piano, he is out of the

MAKE MORE PROFITS

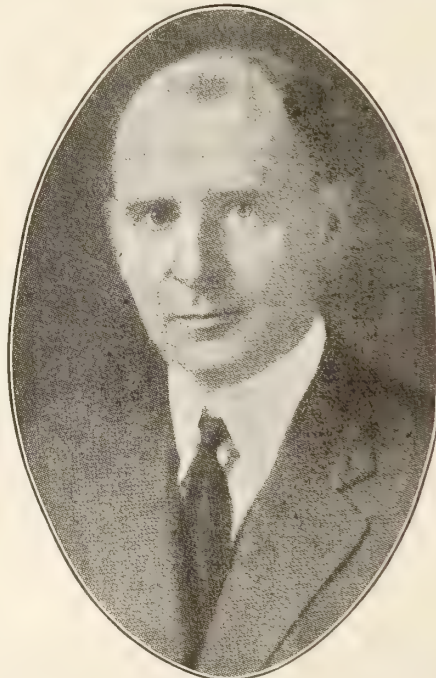
THE biggest car dealer in the biggest city can make more money with an automotive equipment department than he can without it. The smallest car dealer in the smallest village cannot afford to do without it. The establishment of a real equipment department often means the difference between sub-normal and satisfactory business.

market. When he has purchased an article of automotive equipment he is still in need of many articles and is still a good prospect for the dealer. He never ceases to be a prospect for something.

It can be made largely a cash business. Almost every man who can afford to purchase a car can afford to, and will, pay cash for the automotive equipment he puts on it. Getting cash for goods sold is an effective means of increasing profits. Goods sold on time are not so profitable.

Profits Are Big

Profits on automotive equipment are greater. The profit, to the dealer, on automotive equipment runs from 25% to 50%. The average profit on a list of six hundred articles of automotive equipment figured out a shade more than 33 1-3%. The profit on an hour of labor in the shop is a few cents, sometimes nothing. The profit on the sale of a car runs from 15% to 25%. The overhead on the selling of automotive equipment is almost negligible, no extra salesmen, extra time, expensive equipment or costly



RAY W. SHERMAN,
Merchandising director Automotive
Equipment Association

THE question of increasing profits without adding to overhead is one of tremendous interest the year round but at this season, due to the number of car owners who store their cars for the winter, it is of particular interest.

It has been found that the sale of automotive equipment presents an opportunity for all men in the automotive industry coming in contact with the buying public to accomplish the most desirable feat of increasing profits.

One of the many reasons responsible for this opportunity is the fact that the garage owner or dealer does not have to hunt for customers. In every other business vast sums are spent for advertising. Eighty per cent. of this advertising expense is undertaken with a view to getting the prospective customer where he can see the merchandise. Department stores spend millions every year in dressing windows, writing letters and in other expensive methods of appealing to the buying public in an effort to get them inside the establishment. The garage and service station bring to the door of the automotive equipment dealer a steady procession of car owners who need and want the products he has for sale. Their need for gasoline, oil and service is a much more effective drawing card than the expensive advertisement of firms in other lines of business. The men with whom the dealer comes in contact are all capable of absorbing this merchandise. All he has to do is "Ask 'em to Buy."

A second point is the fact that every car owner is a prospect. It is exceedingly doubtful if there is a single car on the road to-day that could not be improved by the addition of at least one article of automotive equipment. A close scrutiny of the cars that drive up to the average gas pump will demonstrate conclusively the truth of this statement. Dealers who make an effort to see what each car needs most, and call the owner's attention to the article that will help him most, will find a gratifying increase in their profit at the end of the month.

The sales are easy for two reasons. The usefulness of the article is great and the cost is comparatively small. The purchase of any of the numerous articles of useful equipment is an investment that pays large dividends in comfort, safety, appearance or performance of the owner's car.

A stock costs little. A very complete and representative stock of automotive equipment can be secured for a few hundred dollars. The dealer who has never stocked or sold this merchandise can, for less than two hundred dollars, put in a stock that will turn over rapidly and return him a large profit on his investment in a very short time.

The weather helps sales. There is no particular season for the sale of automotive equipment. Many of these articles are designed to fit seasonal needs. There are articles of equipment to aid the motorist in cold, hot, dry or rainy weather and irrespective of the kind of day it is, there is always some article of automotive equipment that will make a strong appeal to the car owner.

Goods are always ready for delivery. It is never necessary to run out of stock, no needless waiting for goods, no turning back of deposits collected from customers. There is always something that can be sold and delivered at once. In the event of a customer wanting a particular article that the dealer does not have in stock, this can be obtained from the nearest jobber generally within twenty-four hours from the placing of the order.

Special Salesmen Not Necessary

Special salesmen are not necessary. Anybody in the organization can sell automotive equipment from the office boy and stenographers to the service manager and the proprietor. All that is necessary is a contact with the car owner, a knowledge of his needs and a knowledge of the article that he requires. A few minutes' explanation of the advantages of applying it to his car, a suggestion that he purchase it and the sale is made.



Selling the Customer by Solid Comfort

Saskatoon's Latest Garage Has Provided Everything for the Customer's Convenience and Comfort. Rest Rooms, Toilets and Magazines Are Prominent Features

SOLID comfort.

That is the only way to describe the treatment handed out to the customer in this new garage that the J. H. Early Motor Co. of Saskatoon has established. Keen business insight, born largely of long experience in the game, has evolved this policy of making the details count. They back it with all the force of a hundred thousand dollar plant, on one of the best streets in Saskatoon. And so that's what first impresses one. Solid comfort.

They have just moved into their palatial new home, from their former stand on Second Avenue, where they first opened up as an incorporated firm. Finally things got cramped, they were robbed of all spare room, and couldn't give the service they longed to. The result was—move.

They chose a historic spot. Bought the site of the first Methodist church Saskatoon ever had, had the church torn down, and caused a modern garage literally to spring up where the poor old shake-down of a condemned building had stood.

The garage, 140 feet deep, has a 100-foot frontage on Third Avenue. This is divided almost down the centre, leaving one side, full length, and 55 feet inside measurement, for live storage, and the other side, with 41 feet inside, for show rooms, offices, rest room, accessories rooms, toilets, and general repair room at the rear. Leading from the main storage room into the repair shop, is a wide door. Passage to the showroom is effected similarly. Two wide doors open to the lane at the rear, and narrow doors complete the exit and entrance arrangements. Doors leading outside are folding, those inside, metal sliding.

The Customer is King

The layout of the place strikes one as remarkable. But as he goes through, he is struck more by the solid comfort idea in the treatment handed out, than by anything else. Everything seems there for the customer's convenience. Mr. Customer, in short, is king, and if he is dissatisfied with charges, he has only to be shown detailed accounts, itemized so that he can take them in at a glance, and he is bound to be convinced. For workmen's cards are proof absolute. But perhaps it's better to crack the nut when we get to it.

Entering, then, the wide door to the storage room, the customer drives his car in on the main aisle. A man on constant duty by the door, with desk, telephone and cash register all beside and in front of him, has let him in, shut the door and is at his service. Does he want storage? Space is allotted. The floorman, a tidy-looking individual, quite different from many floormen, backs his car in. Does he

By G. H. SALLANS

want repairs? The service manager is at his side. The wants and shortcomings are jotted down. While customer stands by he sees things being taken away from his car, lap robes, some tools, things that usually get lost in some manner. He is given a slip for these, and they are checked, to be reclaimed when he takes the car out. Just as when you go in swimming, and they keep your watch and your money, if you have any, for you.

After this the lame "four" or the sorrowful "six" demanding revision, is trotted back to the repair room. As it enters, it treads a tire aligner, which mostly says the wheels don't track. This is incidental, as it were, but it cries aloud in itself for the correction of a common fault, and usually cries to some purpose.

The Repair Shop

Entering the repair shop, the car is run under an oblong, double-switch overhead track, block and axle are adjusted, and it is lifted clear off its feet, after the once over has been given, and the necessary evidence taken. Special tackle, one for each wheel, is clamped over the tires, thus taking encumbrances out of the way of the workmen, who, on his side, is equipped with a little portable combination work-bench and chair, with back and all, on which he sits astride, with tools in front of him, and parts beside him.

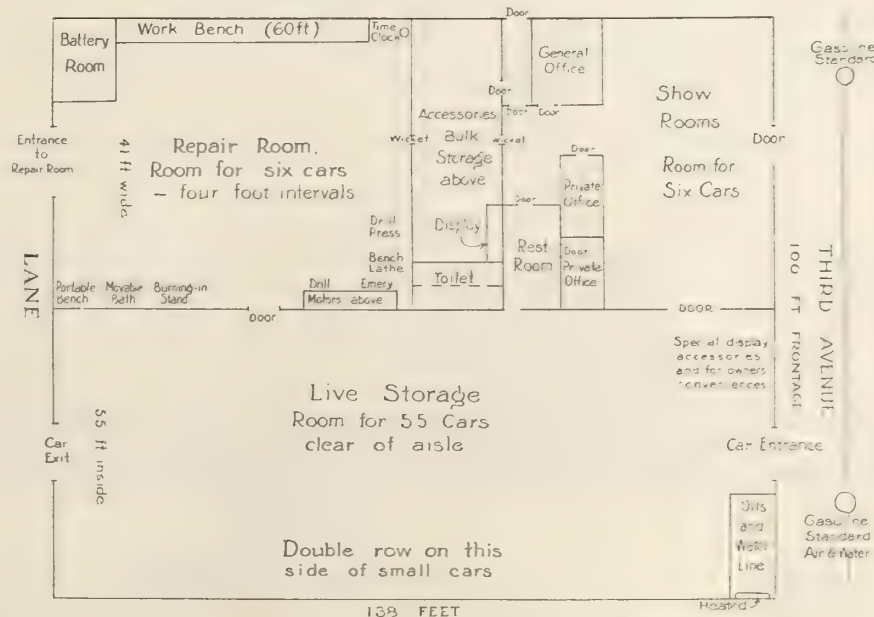
Everything is arranged to expedite the work on cars. Unnecessary running to and fro of the workmen is eliminated. A look at the plan reproduced on this page gives the layout in detail.

All cars for repair face the long work-bench. At one end of the repair shop are the motors, overhead, and directly beneath them the drill, emery and bench lathe. Next is the drill press. The whole car, or any part of it being fixed, is rolled around here on the overhead track, without disturbing other jobs going on beneath. At the opposite end of the repair shop are the burning-in stand, removable from its supports, movable bath, which takes the place of the sloppy pail for washing parts, and some portable benches. These are wheeled in where needed. Plenty of room is afforded for this, even with six cars under repair, for a space remains of four feet on either side of all cars. The battery room is at the end of the long work bench right in the corner, and opposite the curve in the overhead track.

Repair Shop System

The service man calls, say, number "one" to the aforesaid car, bids him take on the job. Number "one" has punched in on a shop work card. He now punches in on the new job, at the time clock in the corner, handing his last card to the manager. Finding out what tools he needs, he goes to the wicket of the accessories room, facing the repair shop, as seen in the diagram, gets what tools he wants, and his number is left, as an indent form, where the tools he took are kept. When he returns the tools, his number comes back. If anyone else wants the tools in the meanwhile, he finds out immediately where they are, and doesn't have to look an instant for them. Number one has them. By this one little stunt, hours and hours are saved, just because everybody knows at all times where tools are. At night a complete check of tools is made, and by this system it has been found, losses are avoided. When the job is done, cards will perhaps show that number "one" punched in on this car at 9.40, and punched out at 11.50. At 2.10 he punched in and at 4.35 he punched out again. Then the service manager hands these cards through to the accessories room, and anything that has been used from that department is added, after which the total bill is passed through the opposite wicket to the general office. From there, the sum total goes to the floorman, who, if he has any storage charge, will add it, and present the finished article, in all its beauty, to the owner.

"But, good lord," ejaculates Customer (Continued on page 9)



This shows the layout of the Early Garage, Saskatoon.

What You Must Do To Get Credit This Year

Before You Can Get Credit You Must Do These Things: Convince the Banker That You Will Be Able To Meet Your Obligations—Make a Fair Statement of Your Financial Position—And Put Your Credit Transactions on a Safe Basis

IF ANYONE should ask you, could you tell him the amounts of your assets and liabilities as they stood when you closed your shop at 6 p. m. yesterday?

Could you tell him the amount of your gross sales and also the amount of stock you had on hand?

Could you tell him the amount of your gross profit and the amount of cash you had on hand?

Could you tell him the total amount of your accounts payable and the total amounts of your accounts receivable?

Could you tell him on what basis you figure your profit and what turn-over you may rely upon?

Could you tell him positively you are getting all the profit you ought to get when you sell a bill of goods?

In other words could you tell him everything about your business that any creditor would naturally like to know?

No doubt, a great many dealers would be hard pressed if forced to answer these questions off-hand. Yet there is no reason why they should not be able to answer them all without hesitation; because an ordinary amount of common sense and a fair knowledge of every day arithmetic are sufficient for obtaining enough information to meet the demands of any reasonable creditor.

Not only will facilities to answer these questions act as a barometer that will direct the dealer in everything he does, from day to day, but those who sell to him on credit will feel assured that he is conducting his business along efficient lines. The most important requisite underlying all transactions on credit is confidence, and as soon as the banker or manufacturer loses confidence in the dealer, the latter will be forced to buy and sell on a strictly cash basis.

Confidence in the dealer rests, in the first place, upon honesty. Deliberate dishonesty or shady dealings, sharp practices, such as transferring title of property to the wife, or fires suspiciously timed to collect indemnities from fire insurance companies, are sure to undermine confidence and result in complete withdrawal of credit extension. On the other hand, a frank, honest dealer, who faithfully strives to conduct his business efficiently even though he is not strong financially is considered by bankers and manufacturers to be a good "moral" risk and in normal times may receive limited credit favors.

The Main Requisite To Get Credit

But besides honesty, the main requisite which those extending credit will demand is financial strength. Generally speaking, the amount of credit which a manufacturer or banker will extend varies in direct proportion to the amount of capital owned or controlled by the dealer and used in his business. It is obvious that the dealer with unimpaired capital amounting to \$10,000 will receive much more credit than another dealer having only half as much capital.

By DONALD R. COWAN

But it is not satisfactory for all the capital to be tied up in real estate—land and buildings. While clear title to property is looked upon favorably by those extending credit, nevertheless the amount of credit extended will depend upon the dealer's ability to pay his accounts in reasonable time—usually thirty, sixty or ninety days. In other words, the excess of quick assets over current liabilities, usually termed the dealer's "liquid" position, determines the dealer's credit limit. The quick assets consist of cash on hand, cash in the bank, bills receivable, stock on hand, and the cash value of salable securities in

Form which the Credit Department of a large Canadian manufacturing concern requires those dealers asking for credit to fill out. It will be noticed that the cash value of merchandise on hand gets first consideration among the assets. Unless the dealer has a large amount of cash on hand or in the bank, the manufacturer, upon seeing a large stock of merchandise on hand, is likely to restrict the amount of credit he will extend because he knows that there are likely to be other creditors to whom the dealer owes large amounts and the turn-over is probably slow. And again, the manufacturer or banker will consider the amount of the dealer's bills and notes payable in the light of current business conditions, and if the dealer's debtors are likely to settle their

accounts readily, the dealer will have more credit extended to him than if the accounts and notes receivable represent dealings with consumers of very limited resources. A dealer's own credit policy influences the amount of credit extended to him because if he loses in extending credit to customers not entitled to it, he jeopardizes his own financial position and shakes his creditors' confidence in him.

The dealer, having real estate as his main asset, cannot expect very much credit because the present cash value of real property depends upon many local conditions and cannot be quickly determined, while the title to it may not be clear. Large realty holdings usually signify a heavy drain for upkeep on the earnings of the business.

Dealer's Liabilities Are Studied

The manufacturer studies the dealer's liabilities in a similar manner. He is anxious to know how various debts are secured, and especially does he pay heed to a loan from a bank because, under the Bank Act, a bank usually has prior lien upon the assets in case of insolvency.

Manufacturers and wholesalers also rely upon other sources of information regarding their dealer's financial position besides that obtained on a signed financial statement. First of all, the reports prepared by the Mercantile Agencies furnish a very large amount of information, and it is to the dealer's interest to give them full and accurate details about his business. A second source is the Trade Clearing House reports which are compiled in each important centre and show how promptly each dealer pays his bills. A third source is the manufacturer's own salesmen. Reproduced herewith is the Salesmen's Report to the Credit Department of a large concern. It will be noted that the salesman is asked to obtain answers to questions other than those directly bearing on assets and liabilities but which, nevertheless, vitally affect the amount of credit extended. For example, the agency for a popular car or reliable implements is much more valuable and hence more likely to induce suppliers to extend than would otherwise be the case. Whether

Name of Individual, Firm or Corporation.....					
Present Address.....					
Officers of Corporation, or members of Firm.....				Age.....	Married.....
Commenced present business..... Bank with.....					
Character of business engaged in.....				Rent per month.....	
Do you keep books of account of said business?.....				Date of last inventory.....	
ASSETS		Dollars	Cts.	LIABILITIES	
Cash value of merchandise not including new cars as per inventory of 19..... at actual cost.....				Owing on Merchandise not including cars, not due.....	
Number and cash value of new cars on hand at cost.....				Owing on Merchandise not including cars, past due.....	
Tools, Machinery, Garage equipment etc., including oil and gas tanks, present value.....				Owing on Cars.....	
Cash on hand.....				State How Secured.....	
Cash in Bank.....				Owing to Relatives and Friends.....	
Accounts Collectable Good.....				Owing Bills Payable.....	
Notes Collectable Good.....				Owing to Bank.....	
Real Estate.....				State How Secured.....	
Stock and Bonds.....				Owing on Real Estate.....	
Other Assets as per description below.....				Other Liabilities as per List below.....	
Surplus \$.....					
Total Assets.....				Total Liabilities.....	
Annual amount business for year ending..... 19..... \$.....					
If interested in any other business, state where, how and to what extent.....					
Are you liable as surety or endorser to any one, and to what amount?.....					
Insurance on stock.....		Is it assigned to anyone?.....			
Insurance on real estate.....					
Has your firm ever failed or has any member of it failed or been declared a bankrupt?.....					
Are there any of your creditors secured?..... How?.....					
Are there any chattel mortgages on your stock, to whom, amount?.....					
The above statement, both printed and written, has been carefully read by the undersigned and is a full and correct standing of my or our financial condition as of..... 19.....					
Firm Signature.....				(a member of the firm)	
Signed by.....				under style of.....	
Was formerly engaged in business at.....					
Remarks or explanations.....					
On the reverse side of this sheet is given a complete list of houses I or we deal with, and amount owing each one also a description of all real estate owned					

In making out a statement like the above, if any reader requires further information or would like some points elucidated, the editor of M. T. I. will be glad to help him. A letter to the editor will meet prompt response.

the dealer's possession. Real estate and shop equipment are not quick assets. Current liabilities consist of bills and notes payable.

Reproduced herewith is the Financial Statement

or not the dealer is likely to continue to handle this popular line is quite as important. And then again, the number of used cars or implements, the price at which they were acquired and the profit or loss on their turn-over will get careful attention, especially at present, with prices declining and trade stagnant. Whether salesmen are on salary or on commission, is an important question.

Recently a well known Toronto dealer made an assignment because he continued to pay salaries to his salesmen, while their earnings were almost nil, on account of business depression. Employing salesmen on a commission basis is a much safer policy while trade is stagnant.

Dealer Should Be Careful In Extending Credit

Another condition which the manufacturer's representative may study is the class of customers to whom the dealer himself is extending credit. During the period of war, prosperity and "good" times, the dealer felt safe in extending credit to a great many local customers with whom he was well acquainted. Today, the dealer should sell on as strictly a cash basis as possible and notes should be obtained when credit is extended for more than a short period. If this rule is followed the manufacturer will have greater confidence and extend credit more freely.

The dealer should have no hesitation in providing the banker or manufacturer with a fair statement of his financial position if he expects to obtain credit from them. The dealer's and the manufacturer's

Salesman	Branch	Date
Salesmen's Report to Credit Department- Head Office.		
Dealer's Name _____		
Street Address _____ Town _____ Prov _____		
Business _____		
Car Agencies 1921 _____		
Will Agencies be continued 1922? _____		
Number of New Cars sold 1921? _____		
Number of Second-Hand Cars taken in 1921? _____		
How many now on hand? _____		
How much will the sale of these cars represent? _____		
What training did the proprietors have to enable them to properly manage this business? _____		
Mode of living, habits: _____		
Is credit being extended freely? _____		
How much money on their books past due? _____		
What is their reputation in the community? _____		
How many Employees-Mechanics? _____ Salesmen? _____		
Office Help and Services? _____		
Are Salesmen on Commission or Straight Salary? _____		
Kind of premises occupied: _____ Do they own or rent? _____		
What knowledge have you regarding his ability to pay promptly? _____		
Credit limit required for monthly purchases? _____		
List names of suppliers for references: _____		
If we require a new financial statement could you secure one? _____		
General remarks and recommendations: _____		

interests are identical because both wish to sell as much as possible. It is to the manufacturer's interest to extend credit wherever possible simply because it means more sales, and there is not a manufacturing concern today that would refuse to extend credit to dealers who by past record for honesty and promptness and by their present financial strength merit an extension of credit.

All that the banker or manufacturer asks is assurance that sooner or later the dealer will be able to meet his obligations. They have a right to expect that much and since a liberal extension of credit is in accord with the economic interest and a vital factor in the success of almost every dealer, the latter should be in a position to furnish a full and frank financial statement whenever asked.

BUSINESS IS IMPROVING

E. J. Parker, sales manager of the Begg Motor Co., Ltd., Vancouver, says "Yes," and he adds that it is getting better every month, and every year, and it can't help it. British Columbia is basically sound. There are, in British Columbia, the raw materials that can at all times be sold for real money. The fruit crop was good, and brought in a lot of money, though the prices were low. Fish, both halibut and salmon, has sold well this year, and brought in real cash. The lumber business is reviving, the shipments of timber and lumber to Pacific Ocean countries taxing the available bottoms.

Selling the Customer By Solid Comfort

(Continued from page 7)

er, he being the sort that always ejaculates things, "I didn't think there was all this."

Out come the time cards, the list of repairs used, and the methods of arriving at the conclusion, and he finds that it is even as he had not at first thought, for he has overlooked, in memory, a few things which were elsewhere taken into account.

"It's the thousand and one little things that make this business, no matter what the general plant is," J. H. Early, manager, asserts.

Therefore, if a car is brought in for storage, all the attentions are shown. If it is called for next day, or any time later, it has been washed and wiped, and goes out like a new toy. A woman, particularly, likes this. And it's therefore good business, for a terrific lot of women drive cars. It strikes her, be she ever so indifferent, as the proper thing.

Comfortable Rest Rooms

If the same woman has driven in, had her car overhauled, and has rested peacefully in the rest room, in an easy chair reading her favorite magazine, she is bound to be impressed.

A man is rather different, but he falls for that rest room idea and the magazine, and the ash tray, and the atmosphere of home that permeates the place, if he has come in from a long drive, or is touring the vast, albeit dusty, prairies. If he is not interested in the magazine, or the ash tray, he will study the display, opposite him, and facing out of the accessories room, of the latest things in motor specialties and comforts. Ten to one, he'll get something that catches his fancy.

Live storage is a big thing in this land of hope and glory, where the temperature goes from sixty below to anywhere around a hundred above. The heated building, indispensable in itself as a garage, must be heated economically or sooner or later it's

going to drain the budget of all its surplus. In the basement of this garage is the mammoth steam heating plant, keeping the building at an even temperature, and insuring against frozen water lines in the building. This, together with oil tanks, lubricating, anti-freeze and other preparations, is located in the front of the storage room (the city fathers rule against the oil standard on the street, though they stand for gasoline) and is handy to the car that pulls up outside.

Above the storage room, as a second storey, will be fitted up for dead storage, U-beams and block and pulley serving the needs of elevation. This ceiling extends over the accessories and show rooms and offices, and on that side of the building is used for bulk storage of equipment.

Obnoxious Gases Taken Care of

Gases are not obnoxious in any case, in a building the size of the storage side, but they would, if allowed, become a nuisance in the repair room. Therefore, when a recalcitrant engine is run inside, a pipe line is attached by means of metal hose, and the gas is blown outside the building into the lane.

Atmosphere of Optimism

This is said to be a dull season, but the Early garage doesn't show it. The repair shop is busy all the time, with a staff of six, which will soon be increased to eight, when the installation is complete. The total staff of the firm at present, including Mr. Early and R. W. Neil, sales manager, is fifteen, and the well-known slump in world conditions is not reflected from any of them. Live storage is booming now, and will continue to do so until spring at least. There is room for 55 cars, the larger ones along one side, in a single row, and the smaller cars on the

other, in two solid rows. This still leaves an open aisle. At the rear of the cars is a rounded curb, leaving two inches to spare for any buffer made. On the entire floor there is not a sharp angle to hold dust. Car parks are marked off, leaving six and a half feet to each.

There is optimism in this plant, that better conditions are not far ahead of the car business. Just for the present it will likely stay with second hand and repair work, but the coming spring ought to bring a boost in sales, they believe. Mr. Early handles the Studebaker, and during the cold months will keep half a dozen models in the show room. The spring, too, will bring tourist trade, and, just as an added detail, in the rest room will be found a map of the entire west, with all main routes charted, along the lines followed by the Saskatchewan Motor League and its counterparts in the other provinces.

"There is no question at all of getting the business," Mr. Early submitted, as he led us aside for a moment to explain the secret of drawing customers when the mercury flops down to about fifty below and the wind hurls six-foot snowbanks around the corner. "Right now we're so busy we'll have to increase our staff."

The warm garage rivals the quality of work as a drawing card in the winter. A few comforts for the customer are sufficient to attract the broken down bus, provided a moderate advertising campaign is carried on.

"Give a man a comfortable place to drive into, to park his car in, and a cosy rest room where his wife can go, meet him at the door and make him feel he's a privileged guest, show him around, and that, with a precedent of good work, will bring his business back year after year." That is what the manager says.



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A BETTER OUTLOOK

IN WELCOMING the New Year and bidding adieu to 1921 we of the automotive and power farming industries can congratulate ourselves at the progress made in adjusting ourselves to the new condition of things. Despite the dire prediction of the calamity howlers the automotive industry came out of the struggle, if not with all the prizes, at least with a fair share of the honors.

The year started badly. There were many handicaps. The Luxury Tax had just been removed and the reaction from that and tumbling car prices created a bewildering situation. In spite of these drawbacks as the year progressed, business picked up and continued to do so almost to the end of the year. The results achieved were very satisfactory and considerably better than the industry as a whole expected.

The farm machinery industry did not fare quite so well. It started the year with business conditions good and well up to those of 1920, but by the Spring the slump took place and there has been a steady falling off in sales ever since.

With the new prices in both industries, manufacturers and dealers are looking for less resistance to sales during the coming year.

The motor shows are expected to react favorably on automobile and truck sales. All eyes are turned toward these shows which promise the largest number of important announcements made at the expositions in years.

BE CAREFUL IN EXTENDING CREDIT

ON ANOTHER page of this issue there is an article on credit. This article points out to the dealer the various things he must do to get credit from the manufacturer, the banker or other financial institutions. One of the points discussed is the dealer's own policy in extending credit. Before a banker will advance money he requires a financial statement from the dealer and one of the things he will check up very closely is the amount of unpaid accounts on the dealer's books. If these accounts run up to a large figure and there is some doubt about collecting some of it, it is certain the banker will hesitate in extending credit to the dealer. If the banker demands security, how much more should the dealer insist on protecting himself? The banker wants to assure himself that the dealer will be able to meet his obligations. The dealer should also be sure before selling an article that the customer is in a position to meet his obligations. It should be every dealer's aim this year to operate on as strictly a cash basis as possible. If credit is extended it should be for very short periods and should only be to those of proven honesty and solvency. The greatest thing is not to make sales but to sell goods at a profit. No business can operate for long without profit. Long credits and bad accounts eat into profits. So start this year right. Operate on a cash basis, and all other things being equal you will come through at the end of the year on the right side of the ledger.

GOOD SERVICE MAKES FRIENDS

WHEN such a mechanical product as an automobile is sold, service is a necessary corollary to sales and advertising, says Norval A. Hawkins, of General Motors Corp. One of the fundamental principles of management, therefore, is that service, sales and advertising are essentially interrelated and must be governed by the same general policy if perfect co-ordination is to be effected.

Service is not a matter of minor concern, to be considered after the purchase of a car, as a mere incident. It is of major importance. Properly co-ordinated with selling and advertising, the service policies of any company, when a system of service is made effective, will be the most powerful means of building up its business.

Nothing in business is more essential than making friends. Model service will make more friends for



As the result of losing a valuable Plymouth Rock, Si Smith has equipped his stock with tail lights as a warning to reckless automobile drivers.

the motor vehicle industry than can be gained in any other one way. Service cannot be good unless it is intelligently planned, systematized and everlastingly followed up. The service function must be performed dependably and uniformly, everywhere that there is a need for service. And it must be performed economically, so that the customer who is served will feel that he has been fairly treated.

"Service" is a matter of major importance, deserving

ing of the greatest executive consideration. All of us should be directly concerned with the establishment and use of basic principles of perfect service to every car user, irrespective of the make of car that he drives.

A. E. A. WILL BE ACTIVE AT THE SHOWS

THE 1922 shows will witness a new force in automotive merchandising, in the sales promotion movement of the Automotive Equipment Association. The association plans to tell its story at all the season's shows. At this time when the dealer's car sales are restricted the A. E. A., "Ask 'Em to Buy" plan is likely to meet with a rousing welcome. The Association's object, whose plan has been fully discussed in former issues of M. T. J., is to show dealers how to increase their profits out of automotive equipment.

On another page of this issue there appears an article by Ray W. Sherman, merchandising director of the Automotive Equipment Association, which should be read by all our readers. In it Mr. Sherman shows the retailer how to increase his profits without adding to overhead. There are some practical points on actual selling which the dealer could use to advantage.

ESSENTIALS OF A TRADE REVIVAL

WHAT makes a trade revival? Primarily, of course, it is contingent upon the raising of the average of favorableness of conditions generally throughout the whole world, says the Fertilizer and Feeding-Stuffs Journal, of England. That is to say, consumers of goods and commodities everywhere must be put in a better position to make their demand effective through a variety of causes, which include good weather for crops in the great countries whose wealth is chiefly derived from agriculture and husbandry, the settlement of domestic strife and internal differences which, while they exist, turn people from peaceful pursuits, the "easing" and wider circulation of money. Yet there is often a world slump when natural conditions actually favor a boom. In such circumstances, the cause must be sought among the people themselves, and it will surely be found to be failure on the part of the producers, distributors, and consumers to co-operate fully in developing the world's resources. Such absence of unity has been one of the greatest factors in the depression through which we have been passing. The minds of people have been bewildered by the huge confusions and contradictions of the times, so that their energies have been dissipated, and the thoughts which should be concentrated upon productive objects held in a state of suspense.

BABSON ON THE OUTLOOK FOR 1922

ROGER Babson, head of statistical organization bearing his name, predicts the following for the new year:

1922 will be a quiet year but many will be deceived and think that the boom is on.

News print will be lower in 1922 and all other paper in proportion.

There will be a mark-down in automobile prices in January.

Buy vacant real estate now and build later. There will be opportunities in 1922, but you will have to look for them with a lantern.

Building material will be lower. Live stock will be higher.

The stock market has started on the long upward swing, but investors must average their purchases over a broad list to take advantage of the upward tendency without suffering from the recession that some stocks will experience.

Gasoline will be down to 15 cents a gallon within five years.

Wages, interest and commodity prices will recede to the 1913 level.

We are half-way through the business cycle which runs from the extreme high prices accompanied by labor troubles, inefficiency, waste and dishonesty to the opposite extreme of unemployment, low wages, thrift and efficiency.

Six of the great industries have liquidated and turned the corner. Six others, including oil, coal, lumber, railway equipment and building material are going still lower before they turn.

The South and New England have reached their lowest ebb and are now on the upswing to prosperity. Pittsburg is just turning, the Middle West is slowly commencing to experience depression.

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Will Your Service Buy the Customer's Dollars This Year?

No Dealer Can Afford to Miss Reading Every Word of This Address Delivered at a Factory Service Managers Convention at New York Recently by an Official of the General Motors Corp. The Car Owner Is the New Boss of the Industry.

I THINK we would all do well right at this time to hark back to basic fundamentals, forgetting the frills, red tape and intricacies of our Twentieth Century organizations, and ask ourselves the question, "Just whom do we really work for?"

It is not the Sales Manager nor the General Manager nor the Board of Directors nor even the stockholders. The man to whom we really owe our jobs, individually and collectively, figure it any way you like, is none other than Mr. Car Owner—the ultimate consumer. It is none other than he who pays us our salaries and tells us whether we shall run full time, double time, half time or not at all!

The mammoth automobile industry of to-day exists because of the good will of this ultimate consumer.

Buying the Customer's Dollars

The automobile business must be reduced to sound fundamentals. We are entering into a new era. We've got to forget some of our past tactics. As Charles F. Kettering recently expressed it—"the whole scheme of things has been reversed. We are out trying to buy the customer's dollars—our currency is in the form of gears, cylinders, pistons and axles—the exchange must be mutually advantageous—both sides must benefit—honesty must be the basis of all transactions. If the customer tries to pass off a counterfeit dollar on us we refuse to take it—and by the same token, if we attempt to give him a counterfeit gear, or a defective axle, he has an equal right to become incensed."

Co-operation Needed

We must be unselfish about this thing. We can best help ourselves by helping one another. No one manufacturer can ever hope to have enough service stations to care for each and every one of his vehicles irrespective of where they may happen to be. The owner, at some time or another, is at the mercy of an independent garage or a dealer who has a competitive interest. It is only through a proper co-operation that we may adequately serve the owner.

The Causes of Service

There are five causes and only five causes of service cost to the producer, or the car owner, or both. They are as follows—

- 1st—Faulty engineering design.
- 2nd—Faulty production, including careless workmanship, and faulty material or both.
- 3rd—Incompetence on the part of the service repair men.
- 4th—Incompetence on the part of the user.
- 5th—The wear and tear of normal use.

The first, second and third causes for service expense are directly within the control of the manufacturer, and we, as service managers, should make it our business to take some interest in the fifth cause. If the maximum value to the user with the minimum service cost to the manufacturer is to be attained, then the future changes in our products must be in the direction of eliminating needless varieties in design and toward the selection of the best types of construction.

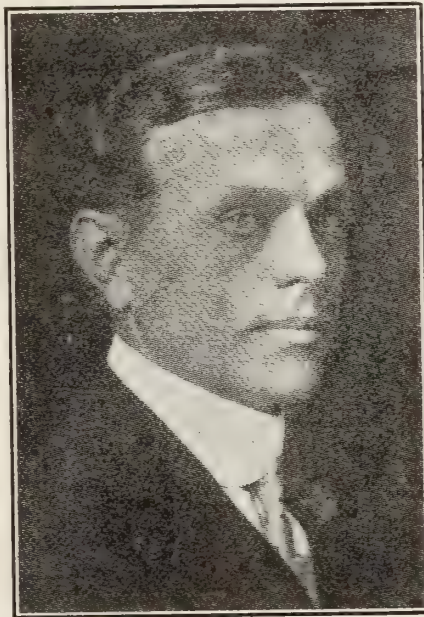
The elimination of needless variety is necessary to reduction of both production costs and service costs.

I wonder just how much thought engineering departments are giving to this question of service. I'll tell you some of the things that we are beginning to do in the General Motors Corporation. First of all, in the future, no new model will ever get into production until it has been subjected to the most gruelling scientific tests that we are able to devise. A proposed model must be subjected to service, equivalent to what it would get from the most careless user during the normal life of the car, keeping an accurate "log" of wear, breakage, etc., in order that we may in our service manuals give the dealer, and owner, specific, accurate and dependable information regarding the upkeep, repairs and replacements.

By N. A. HAWKINS

Also, that we may give the dealer, right from the start, accurate data regarding the replacement parts that he should carry in stock.

And this is not all. Before we go into production on any new model, such a model must be carefully analyzed from a mechanical service standpoint. The design will not stop with the completion of the layouts and detail drawings covering the parts of the car itself, nor even with the design of production tools for its manufacture. Before any such job goes into production in any of our factories in the future, no



NORVAL A. HAWKINS.
General Motors Corporation.

less than five sets of tools must be designed, as follows:

- 1st—Jigs and fixtures for factory production.
- 2nd—Repair tools and fixtures for service shops at branches and large distributors.
- 3rd—Repair tools and fixtures for large dealers.
- 4th—Repair tools and fixtures for small dealers and sub-dealers.
- 5th—Hand tools for the owner designed especially for the particular car and adequate for such minor

FOR WHOM DO YOU WORK?

"It is not the Sales Manager nor the General Manager nor the Board of Directors nor even the stockholders. The man to whom we really owe our jobs, individually and collectively, figure it any way you like, is none other than Mr. Retail Customer—Mr. Car Owner—the ultimate consumer. It is none other than he who pays us our salaries and tells us whether we shall run full time, double time, half time or not at all. The mammoth automobile industry of to-day exists because of the goodwill of this ultimate consumer."

repairs and adjustments as may be entrusted to him.

In other words when the owner finds something wrong on his car and he has no tool for repairing it he knows that it is time for him to visit his dealer and when the dealer has a job of overhauling for which his class of equipment is inadequate, he will in turn refer such work to the nearest distributor or branch with whom he will have a standard working arrangement covered by the terms of his contract.

The service man is essentially a salesman, in

fact he must be a super-salesman. The new car salesman, generally speaking, sells the customer only one time. The service salesman, on the other hand, must keep the man sold by reselling him time and time again throughout the life of the car.

Sales and Service Activities Must be More Closely Knitted

Sales and Service activities must be more closely knitted. The salesman must work in closer co-operation with the service department. When the owner has trouble he calls on the service man to remedy it—not the salesman. Therefore, the service department should have something to say regarding the claims and promises of the ultra-enthusiastic salesman. When a salesman resorts to untruths or to promises which he knows cannot be fulfilled it is an admission that he is lacking in real sales ability. The car salesman should not be allowed to let his customer drop immediately after the first sale is consummated. It is not only proper but profitable that he continue his interest in his client and not pass the entire burden on to the service man. In a retail organization where such a policy is followed, the salesman will be more careful in his sales tactics and disappointed owners will be supplanted with satisfied and permanent customers.

The far-sighted salesman will make it a point to call on his customers from time to time—he will help the service man to keep these customers sold and he will be amply rewarded for the time and effort involved. Motor cars, in the future, are going to be sold from the back door rather than from the sales floors and across mahogany tables. Those of us who expect to survive keen competition in a permanent buyers' market must get our "house in order."

Improving the Dealer's Service Station

While it is generally conceded that many dealer institutions are not efficiently operated, they are not so much to blame as are we who have failed to educate our retail representatives in the proper methods of doing business. If the retail service station has been inefficient, it is we who are to blame. There is a total of 45,135 automobile repair shops in the United States, and many thousands more in Canada. It stands to reason that the individuals operating these repair shops do not have the same opportunities to develop proper methods of servicing our products as do we with our elaborate organizations and service specialists.

We must begin to take greater advantage of our facilities and give our dealers the advantage of our best service. Let us remember that while these service and repair stations are for the most part operated by individuals not directly on our factory payrolls, they nevertheless work for the same boss that we do, namely—Mr. Car Owner.

Three Kinds of Service

Service, in terms of our industry, divides itself into three classifications:

- 1—Parts manufacture and distribution.
- 2—Mechanical repair work.
- 3—Moral or Psychological Service.

In all three classifications, we need greater efficiency. And when I say efficiency, I don't mean "red tape" and system for the sake of system. When you come right down to brass tacks, there is only one definition of this word "efficiency" and it may be expressed in these two words "Responsibility Met." The reason that many dealers have failed to make a profit on their parts business is because the factories have guessed at what they needed rather than making it our business to know what they were going to require. The result has been reflected in great volumes of telegraphic orders, express shipments and unnecessary expenses to the car owner.

Within our own organization we found through a careful analysis that from twenty to thirty-five per cent. of all repair parts orders during the first six months of 1921, were telegraphic and that almost 50% of our parts shipments were going forward by express or parcel post as rush orders with a consequent high percentage of errors.

Efficiency is responsibility met. We have not met our service responsibility until we place repair parts within immediate reach of our car owners even in the most remote sections of this country.

Repair Parts Prices

We recently made an investigation on a number of cars of representative makes to determine the relation between aggregate repair parts prices and the list prices of the finished products. The ratio ran from one and one-half to two. Why should it be necessary to get twice as much for a disassembled car? The complete car has a great deal more mechanical labor chargeable to it. There is always an unavoidable breakage of material incidental to the assembly process. It is supposed to require a more expensive type of salesman to sell a finished car and it is usually necessary to demonstrate it before consummating a sale.

Mechanical Service

Efficient mechanical service on the part of the dealer is of prime importance. It is not enough that he be able to just "fix" a car so that it will run—he should possess the knowledge and facilities for turning out work that would pass the most rigid factory inspection. He should have equipment proportionable to his service requirements. He should have special tools for those operations pec-

uliar to the particular car that he represents, unless he is a very small dealer, in which case he should have a working arrangement with his distributor on overhaul jobs which he is not prepared to handle.

The dealer must lay out his shop properly. The stationary equipment should be located with a view to increased efficiency and the hand tools should be kept in special tool racks where they may be readily located instead of thrown helter-skelter around the shop. The owner must not be penalized for inexcusable lack of efficiency.

Moral or Psychological Service

And next we come to our third classification of service, namely, moral or psychological service. In addition to the tangible repair parts distribution and mechanical phases of our service activity, there is this intangible moral phase. In the future, we are going to see this thing that I choose to call moral service assume an ever increasing importance. Take the matter of keeping cars clean in a repair shop. A man may bring his car into your service station ever so dirty, but this does not license you to turn it back to him in a still more untidy condition. In the first place, the repair shop itself should be kept clean and there is no necessity for the mechanic to wear the same pair of overalls throughout the season without washing. A clean repair shop is one of the dealer's best advertisements. A repair job should never have a "finish" tag put on it until the body interior has been dusted out and the steering wheel wiped off.

When the bill for a repair job runs over \$15 I would say that the dealer should give the owner a wash and a polish free of charge and he'll find

it, without a doubt, the best investment he ever made.

The average mechanic seems to fairly revel in the joys of disseminating grease and oil on a broadcloth interior—he may miss the universal joints, the transmission and the differential, but the front cushion and the steering wheel—N-E-V-E-R!

Future Business Depends on Service

As a product attains a wide distribution the prospective purchaser becomes more or less immune to our advertising and sales activity and more and more under the influence of his friends, who have had experience with the product in question. Whether the product receives an endorsement or condemnation depends largely upon the efficiency of the service that has been and is being rendered.

In the future automobiles and the service that must inevitably follow will have to be sold, and sold hard—our most valuable allies are the car owners whose continued good will rests largely in the hands of you service men.

In the future permanent satisfaction to the owner is the rock upon which we must build. Service is destined to play a most important role in the success or failure of every manufacturer. The word "service" represents the wisdom of centuries. The idea of service, in its broad sense, is as old as civilization itself. It has been taught by the great teachers of all times—by wise men of all ages—by the real benefactors of mankind. It is up to us to crystallize this idea—to interpret it in terms of our own business. It is to you men that we must look for the greatest future development of the automotive industry as a whole—and remember that "He profits most who serves best."

Start the Year With a Used Car Policy

"AS LONG as new cars continue to be marketed," said E. J. Parker, sales manager of the Begg Motor Company, Ltd., Vancouver, "just so long will there be a business in used cars. Up-to-date, the Used Car has been the bugbear of the motor car market."

"For a few years each manufacturer seemed to consider that he must get a new, radical departure every year. He must have a distinctly different appearance to his offering for the coming year—something that would make the car owner ashamed to be seen in his 'old' car of the previous year's vintage."

"The idea seemed to be to follow the policy of the style autocrats in ladies' wearing apparel; make each new season's style so radically different that the preceding year's model would immediately be relegated to the class of the hoopskirt."

"Naturally, there was always a regular 'second-hand car' market. There is yet."

"Whenever a car owner is induced to purchase a new car, his old car must be placed for him. If this business is not carefully watched, these cars will cause no end of unpleasantness. Recognizing that the used car market is here to stay, and the disposal of used cars an actual necessity, we have gone into the business carefully and have, I believe, got our used car department functioning on an up-to-date basis."

"I must say that the used car department, of all departments, needs the closest attention and the maturest judgment. One thing is imperative—that a policy be outlined for the conduct of the department, and that it be adhered to. The basis of success is, of course, the care with which the examinations are made and the valuations set."

"In our establishment, we have prepared a 'Used Car Checking Card' which very effectively standardizes our practice in dealing in used cars." The form used is reproduced herewith.

Note that the make of car, year, motor number, license number, name of owner and date, are all entered before examination begins. Then the owner is asked to state the condition of the engine, with the interrogator standing with pencil poised over the card to make the proper notations. Mr. Parker says: "When the owner sees that you are putting down on the card just what he says, and knowing that if a deal is made the truth of his statement will be ascertained, he hesitates about making false state-

ments. The state of the radiator can be seen. The wheels and steering gear can readily be tested as to looseness of bearings, etc. It is well for the examiner to note the cranking handle. If it lies on the floor at the driver's feet, and the handle is polished well with the hand, it is logical to conclude that

the battery is defective, no matter what the owner says."

There is a line for mileage; this is also recorded.

The Begg Motor Company have a price list of used cars. In this list all makes, and all styles, and all years are entered together with the price that each model of each car will bring when in perfect condition.

The amount entered on the card as "Valuation" is arrived at in this way. Say, for instance, that the price list shows a car, worth \$550 if in good shape. After making examination, it is found that a tire will have to be replaced, \$20, a coat of paint will be needed, \$25, and a complete overhaul, \$55. This total of \$100 will be deducted from the used car list price of \$550 and the car will be valued at \$450.

Having purchased the car, the company sends it through all the departments in turn. It is thoroughly overhauled. It goes through the paint shop; the tire shop inspects all tires and makes repairs where necessary; the battery department vouches for the condition of the battery, and the upholstery has equal attention.

When thoroughly overhauled, the car is offered for sale, and the experience has been that the buyer is satisfied with his purchase and gets the performance the company knows the car is able to give.

The past year has been a hard one on the used car dealer. That is, for the one who is ethical. The very fact that a car is held for complete overhaul, will let the dealer "in" for the declines that have taken place in the new car prices.

Mr. Parker is well pleased with the bill-board advertising the company is doing. The slogan used is happily chosen, and is having its effect. The slogan is "The Safest Place to Buy a Used Car."

Another plan that works well within the organization is an arrangement whereby all employees, other than salesmen, get a bonus on sales resulting from their "tips." It may transpire during some conversation where a Begg employee is present, that someone proposes to buy a car. That "someone's" name, and address, and the kind of car he has a preference for will be handed in to the sales manager on a card; if possible the employee will mention to the prospect the reliability of "his" firm, the choice of used cars they have in stock, how they are all overhauled, etc. Mr. Parker says the plan works well for all concerned.

Used Car Checking Card	
Make of car.	Year.
Motor No.	License No.
Name of owner.	Date.
Motor	Valuation, \$ Mileage Date
Radiator	
Wheels	
Steering	
Battery	
Lights	
Wiring	
Starter	
Body	
Top	
Upholstering	
Curtains	
Fenders, Front	
Fenders, Rear	
Tires Front	
Tires, Rear	
Tires, Spare	
Bumper	
Spare Rim	
Brakes	
Tool Kit	
Jack	
Pump	
Crank	

A New Canadian Industry



The Great International Harvester Factory at Chatham—The Home of the New International Speed Truck

International Speed Truck

The most recent addition to the line of International Motor Trucks is Model S Speed Truck. Impartial engineers, buyers and users unite in declaring it to be the strongest built light delivery truck in Canada.

We have every reason to believe that this is true. And there is an excellent reason. Model S Speed Truck has been built down from a well established line of heavy duty trucks—instead of built up from a passenger car. Frame, wheels, tires, engine, transmission and rear axle are of heavy truck design. The highest grade material is used and no effort has been spared to make the truck measure up in every particular to the good reputation which International Motor Trucks everywhere enjoy.

From the start the International Speed Truck has grown steadily in popularity among business men who want quality, durability and low-cost operation combined with speed. Sensing the growing demand for this Model, the Harvester Company immediately arranged for its manufacture at Chatham Works—where, for many years, Chatham, McCormick and Deering wagons and sleighs have been built for the Canadian trade.

This move makes the International Speed Truck a genuinely Canadian-made product and brings closer to the user the practical after-sale inspection and engineering service for which International Motor Trucks are justly famous in every Province of the Dominion.

Other Sizes and Capacities

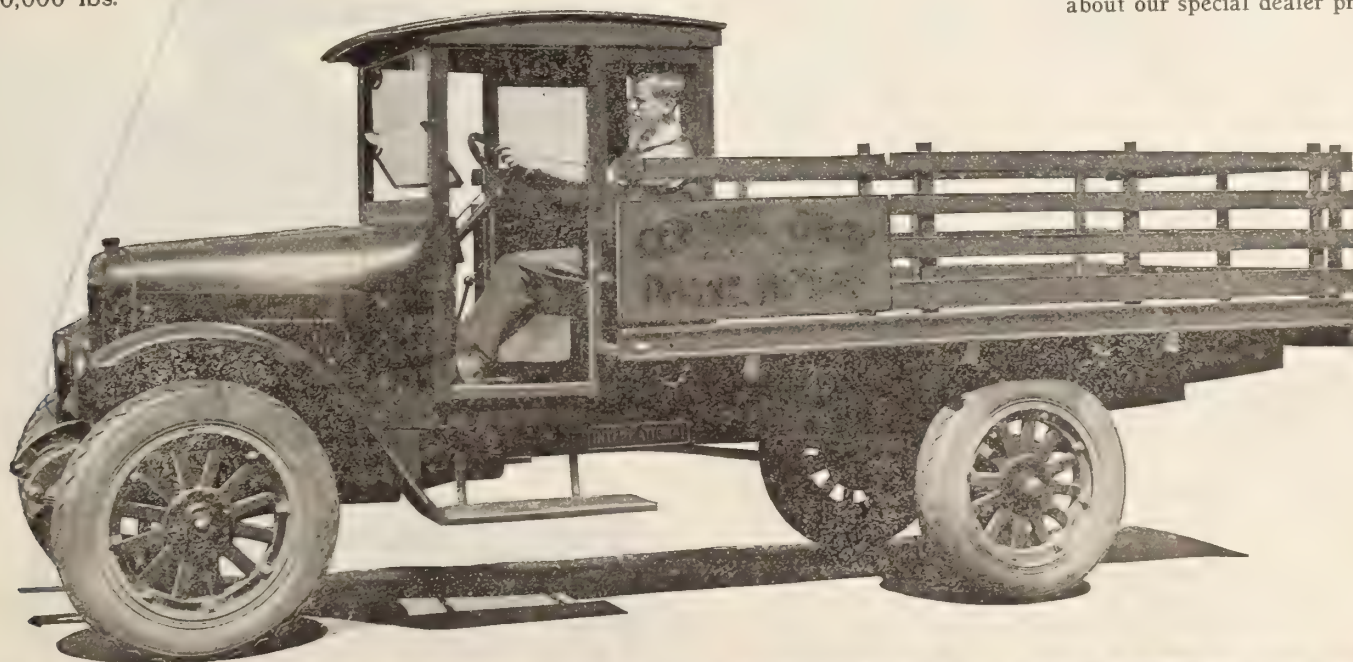
Model 21-	2000 lbs.	Maximum
Model 31-	3000 lbs.	"
Model 41-	4000 lbs.	"
Model 61-	6000 lbs.	"
Model 101-	10,000 lbs.	"

INTERNATIONAL HARVESTER COMPANY OF CANADA LTD HAMILTON CANADA

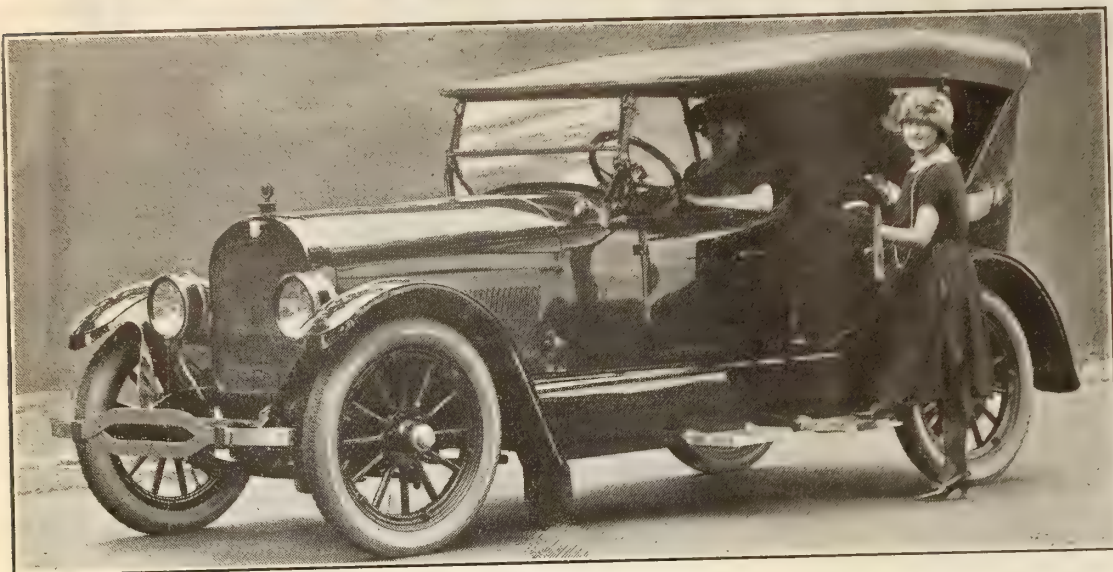
WESTERN BRANCHES—BRANDON WINNIPEG MAN. CALGARY EDMONTON LETHBRIDGE ALTA.
ESTEVAN N. BATTLEFORD REGINA SASKATOON YORKTON SASK.
EASTERN BRANCHES—HAMILTON LONDON OTTAWA ONT. MONTREAL QUEBEC QUE. ST. JOHN N. B.

Of Interest to Dealers

An International Speed Truck equipped like the one below would be a money-making asset to your business. It is a practical hauling unit that can be used every day in the year and it constitutes a foundation for a lucrative business in the future. Ask the blockman about our special dealer proposition.



The Haynes "75" Has Many New Features



The new Haynes 75. Six distinctive body types are available.

mounted on the rear end. The starter is also Leece-Neville, and engages with the flywheel through a Bendix gear. It is controlled by a magnetic switch, which is operated by the ignition switch. A 12 inch Borg and Beg clutch is mounted in the flywheel, and the transmission shafts are mounted on Gurney ball bearings.

The rear axle is Haynes-built, three-quarter type, mounted in Gurney ball bearings. Final drive is through spiral bevel gear. The drive is through the springs, but torque and braking reaction is absorbed by a torque arm. The external and internal brakes operate directly on the rear wheels, and are sixteen inches in diameter by two and one-half inches wide. Tires are 34 x 4½ inches, cords all around. The front axle is conventional Elliot type, and steering is by means of a Jacox gear.

Each body style is mounted on a 132 inch wheel base chassis. The bodies are made of full aluminum over a wooden body frame to insure rigidity. Exterior side cowl lights of design identical with the head lamps enhance the beauty of the car. Starting and lighting systems are controlled from the instrument board.

The deep, roomy seats of the touring car, tourister and speedster, are upholstered in genuine leather, laid in french plaits over body-conforming seat springs. A well-equipped mahogany vanity case is convenient for the women passengers, while a mahogany smoking case serves the men. An indirect dome light gives a cozy glow to the interior, and a car heater gives comfort during the winter months. Silken curtains on quick-acting rollers protect the passengers against the glare of the sun. The interiors are upholstered in durable fabrics of attractive design. The front compartments of the sedan and suburban are upholstered in genuine leather. The standard color of all 75 models with the exception of the special speedster is Haynes coach blue.

that is thrown off by the connecting rods.

The intake manifold is jacketed directly above the carburetor, forming a hot spot. The jacket is in direct contact with the exhaust manifold, and a plug valve in the passage between the two controls the amount of hot exhaust gases that enter the hot spot, so that its temperature may be varied to suit fuel and climatic conditions. A flexible tube carries the exhaust from the hot spot to the exhaust pipe. The carburetor is a 1½ inch vertical plain tube Stromberg. The cooling water is circulated by a centrifugal pump, controlled by a thermostat. The generator is of Leece-Neville make, driven by the water pump shaft, and the Kingston distributor is

Two New Models Offered by Gardner

THE new Gardner has the straight line body effect in its design. The roadster is built to accommodate three persons. It is smart in lines, due to the tapering rear deck. Just back of the seat is a convenient compartment which affords ample carrying room for a large suitcase, packages, tools, extra tubes, etc. The top of the rear deck is designed so as to be easily removed.

The touring car seats five persons. Its wide spacious doorways, gracefully curved fenders, low, rakish hand-tailored top and other refinements give it a smart appearance.

The engine has four cylinders of the L-head type, 3½ x 5. The Alemite system of chassis lubrication forces greases in all chassis bearings. The axles are equipped with Timken and Hyatt roller bearings. Pinion shaft bearings are also Timken. The transmission is simple and gears shift easily and noiselessly. Spiral bevel differential gears with driving pinion integral with shaft

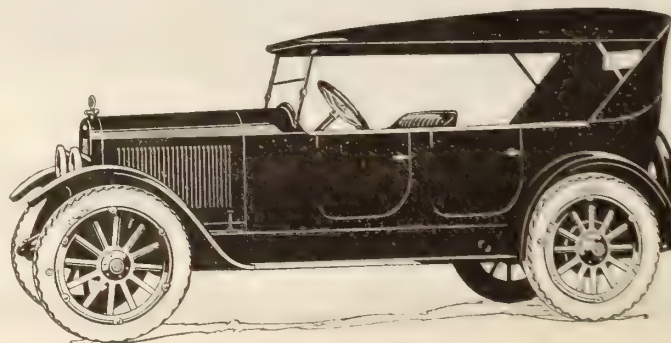
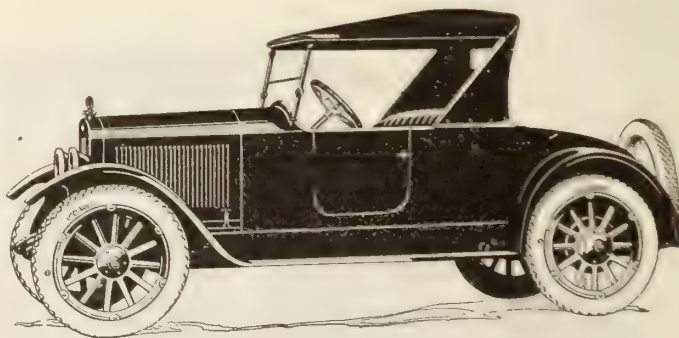
are used. The clutch is a Borg and Beg.

The frame is made from hydraulic-pressed channel steel with five channeled cross members secured to the frame, and with heavy gusset plates.

The specifications are: 112-in. wheelbase; Westinghouse ignition, starting and lighting system;

Carter carburetor; Alemite system of chassis lubrication; Willard battery; Motometer; Stewart-Warner speedometer driven from transmission.

An aluminum body molding is a rather unusual feature on a car of this type. Not only does it set off the car to advantage, but it has an additional function of completely deadening the sound of closing doors. The body frame of the sedan is made of hard maple, kiln dried. The metal panels are 20-gauge steel sheets and are flanged by mechanical means, which practically eliminates solder and assures a permanently beautiful finish. Gardner Motor Car Co., St. Louis, Mo.



The 1922 Gardner shows many new refinements. A sedan is now added to the line.

THE NEW 1922 HAYNES 75 is a newly designed car with a 132 inch wheel base, and embodies the first radical changes since the advent of the Model 30, in 1915. In appearance the Haynes 75 resembles the Model 47. The radiator is straight across the bottom. Exterior side cowl lights enhance the appearance. Six distinctive body types are available: a seven-passenger touring car, a four-passenger, four-door tourister; a two-passenger special speedster; a five-passenger brougham; a seven-passenger sedan, and a seven-passenger suburban.

The power plant is an L-head, inclined valve, six-cylinder engine, developing 75 horse power. It is of the orthodox construction, incorporating all of the features which characterize the later units of this type, such as inclined valves, extreme rigidity of crankshaft and crankcase construction and accessibility.

The most noticeable difference in the design is the change in the valve, carburetor, exhaust pipe and muffler from the right side of the car to the left. This change carries with it a rearrangement in some of the other parts such as the starting motor, which was previously located on the rear of the bell housing, but is now on the front side.

The use of removable cylinder heads is also a new feature. The cylinders are block cast, 3½ x 5-3/16, giving a displacement of 299 cubic inches, with a brake horsepower of 75. The valves are mounted on the left side of the block, and are inclined 4 degrees towards the center of the cylinder, which gives a very clean combustion chamber. The cylinders and water jackets are cast in one piece, with detachable heads. The head is made in three sections to allow for expansion, each section serving two cylinders.

The crankcase is an aluminum casting and carries the crankshaft. The lower half of the case or oil pan is also an aluminum casting, which can be easily lowered for bearing adjustments. The crankshaft is carried in four bearings, 2¼ inches in diameter, drilled for pressure oiling, and balanced statically and dynamically. The connecting rods are of the spade type, in which the lower end of the rod is forged out to cover the entire area of the crank pin, distributing the wear equally over the bearing. The pistons are cast iron, fitted with three rings above the pin and oil grooves below.

The camshaft is carried in four bearings and the cams are of the zero velocity type. The drive is through a line belt silent chain, which also drives the accessory shaft. A feature of this drive is the automatic idler, which affords the proper chain tension at all times without manual adjustment. The valve lifters are of the mushroom type, and are mounted in carriers that are removable from the outside of the engine. Each carrier serves two cylinders.

A gear oil pump is driven from the rear of the camshaft through a short vertical shaft. The pump is mounted on the bottom of the upper half of the crankcase, in a recess in the oil pan, and can be removed in case of trouble without disturbing any other parts of the engine. A pressure regulating valve is connected into the oil line which prevents excessive pressure at high speeds. The pistons, piston pins and valve mechanism are lubricated by oil



Made in Canada
from
Canadian Raw Materials

A Canadian-owned Factory
for
Canadian Markets

Announcing

ASBESTONOS

BRAKE LINING

The Asbestonos Company

The Asbestonos Company is an all Canadian Company, which has spared no effort or expense to produce a brake lining which is the best on the market. It has succeeded with Asbestonos.

Wearing Life

The *wearing life* of Asbestonos can be depended upon. The best asbestos fibre produced in the Thetford district is used, and the yarn is interwoven with a double fibre brass wire to give it more strength. After the weaving operation it is thoroughly impregnated with a special compound which renders it impermeable to grease, etc.

Centre of World's Supply

It is made right in the centre of the principal world's supply of Asbestos—in the Eastern Townships of Quebec. Made under the most perfect conditions—it is a perfect brake lining, and its cost is the minimum.

Policy of Company

The policy of the Asbestonos Company will be to sell through legitimate trade channels. The selling arrangements will be taken care of by Messrs. Richardson & Bureau of Montreal, who are ready to quote prices for immediate deliveries and supply samples, both of the raw white and finished black products.



Brake Lining Racks are supplied free of charge by leading jobbers to dealers and garages who handle Asbestonos Brake Lining.

Ask Your Jobber for Asbestonos

ASBESTONOS COMPANY

East Broughton, Quebec

Richardson & Bureau

Montreal

Sole Selling Representatives

EXCELLENCE

2-PIECE PISTON RING

**Expands
Both
Ways**



THE PISTON RING SCIENTIFICALLY AND MECHANICALLY RIGHT

The Excellence 2 piece Piston Ring keeps spark plugs clean, gives full advantage of compression and prevents pumping of oil into the combustion chambers because it expands both ways, viz: it fits tight against the cylinder walls and takes up any slack that exists or may develop in the piston-grooves.

The slots are cut zig-zag thusly preventing leakage. The rings are reground after slotting.

One half of the ring covers the slot in the other half, making the most perfect seal.

Thus there is a complete explosion and no waste of oil or gas.

The demand for it is rapidly increasing and the dealer should waste no time about getting in a stock. "Every motorist you introduce it to will appreciate its merits and thank you for bringing it to his attention."

There is good money in pushing the sale of EXCELLENCE 2-Piece Piston Rings. You are urged to act upon this tip at once.

Order a Few on Trial



LAMONTAGNE LIMITED
Wholesale Dealers in Automotive Equipment
QUEBEC MONTREAL WINNIPEG

With The Manufacturers

The Wonder Tractor Co., Montreal, has been incorporated with a capital of \$90,000.

Western Implements, Ltd., is the name of a new concern lately incorporated at Winnipeg.

The Universal Wrench Co. has been incorporated at Windsor, Ont., with a capitalization of \$250,000.

The General Forgings and Stampings, Ltd., Merriton, Ont., have increased their capital to \$650,000.

Vincent Massey has been appointed president of the Massey-Harris Co., in succession to the late Thomas Findley.

Studebaker Corp., of South Bend, Ind., has announced that operations at all plants after January 1, will be at full speed.

Northlands Oils, Ltd., with headquarters at Windsor, has been incorporated with authorized capital at \$200,000.

Incorporation is announced of Motor Spring Lubricators, Ltd., with a capitalization of \$150,000; headquarters at Montreal.

The Willys-Overland Co. announced recently the appointment of Joseph H. Alfred as assistant to A. C. Barber, sales manager.

C. L. Wisner, general sales manager of the Massey-Harris Co. recently spent some weeks in the West investigating conditions.

John B. Mans, a prominent figure in international tire and rubber circles, has been appointed director of sales of the Oak Tire and Rubber Co.

Oshawa Sales and Service Ltd., has been incorporated, at Oshawa, to deal in trucks, tractors, and implements. Capitalization is set at \$100,000.

The Seiberling Rubber Co. was incorporated recently at \$10,000,000 by Frank A. Seiberling, former president of the Goodyear Tire and Rubber Co.

The Simplex Iron and Tool Co. has been incorporated to manufacture adjustable wrenches. The new concern is located at 216 Adelaide St. W., Toronto.

S. U. and W. Electrical Mfg. Co., Ltd., has been incorporated in Ontario with capital of \$40,000 and head office in Hamilton, Ont., to manufacture electrical appliances, accessories, etc.

George White, formerly assistant sales manager for the Massey-Harris Co., in Canada, has been appointed general manager of the Company's American subsidiary plant at Batavia, N.Y.

A. P. Lymburner & Co., Ltd., 207 Providence Street, Montreal, are now manufacturing the Cross shock absorber. This absorber embodies many features that should appeal to the trade.

Charles O. Stillman, of Toronto, president of Imperial Oil, Limited, received scalp injuries when he was involved in a motor accident at Bloor and St. George Streets, Toronto, recently. The car he was driving was struck by a street car.

On account of His Honor, Lieutenant-Governor Harry Cockshutt, having to reside at Government House, Toronto, during his term of office, he has resigned as president of the Cockshutt Plow Co. Vice-President George Wedlake has been made president.

Clarence A. Earl, President of Earl Motors Inc., Jackson, recently announced the appointment of Leon S. Wescoat as treasurer of Earl Motors Inc., with headquarters at Jackson. Mr. Wescoat was formerly treasurer of the Fisher Body Company of Detroit and

is well and favorably known to the trade. John Fletcher, Vice-President of the Fort Dearborn National Bank, Chicago, and former treasurer of Earl Motors Inc., resigned as treasurer of Earl Motors Inc., effective December 31st, as a result of his many banking obligations.

At the annual meeting of the Oak Tire and Rubber Co., approval was given the plans for enlarging the present factory, which has been made necessary by the increased demand.

The Willys-Overland Company, Toledo, announce the appointment of Joseph H. Alfred as assistant sales manager. He will direct all operations of the branches of the company, and will have charge of general sales promotion and sales development work in the dealer organization.

C. W. Curtiss, formerly General Manager of the Splitdorf Electrical Co., and later President and General Manager of the VanSicklen Speedometer Co. until its sale to the Stewart-Warner Speedometer Corporation, has been elected President of the Tiffany Manufacturing Co., of 50 Spring Street, Newark, N. J. Associated with Mr. Curtiss are, Paul J. Landemare, Secretary and Treasurer, formerly treasurer of the Splitdorf Electrical Co., and later controller of the VanSicklen Speedometer Co., and Carl T. Mason, Chief Engineer, formerly Chief Engineer of the Splitdorf Electrical Co. The Tiffany Manufacturing Co. manufactures a line of high grade automotive electrical specialties, such as ammeters, cut-outs, parking lamps, etc., for both manufacturers' equipment and the jobbing trade.

EARL MOTORS ON SOUND BASIS

THE Earl Motors Corp., successor to the Briscoe Motor Corp., in making the announcement of production of its new line of cars, make the statement that the company is soundly financed. Its financial affairs are in the hands of John Fletcher, vice-president of the Fort Dearborn National Bank.

A controlling interest, it is stated, is held by the Tilden Estate of Chicago, in which is vested more than 50 per cent. of the present 200,000 common shares, and which, with associates, is underwriting at \$10 a share a new issue of 200,000 shares and \$2,500,000 five-year, 7 1/2 per cent. debenture bonds.

WILLYS OVERLAND GETTING READY FOR RUSH

THE Willys-Overland Co., Toledo, have announced that the forces in the tool and die room could be trebled and advertisements for sheet metal diemakers and experienced tool makers have been sent out. This is the first indication of the company's intention to take on a full force for 1922.

FRANKLIN WILL OPERATE ON TIME

THE Franklin Automobile Co., Syracuse, N.Y., on Jan. 3 put its regular working force of 3,000 employees on a full time basis. Factory officials state that by Feb. 1 an output of 44 cars daily will be reached.

FORD TO RESUME FULL TIME BASIS

THE FORD Motor Co., of Canada, which for some time past has been operating on a four-day-a-week basis with reduced staff, will shortly after the New Year resume operations on a full time basis.

An Entirely New Idea In Wheel Construction

The Kemp Metal Auto Wheel---The only wheel practically indestructible



The Kemp Metal Auto Wheel is simply an artillery type wheel made of steel instead of wood. Shrinking, splintering and warping—evils to which the wood wheel is subject—are entirely eliminated in the Kemp Metal Wheel. The proven strength of the steel tube and its resistance to strain are adopted to make an all-metal wheel that for all practical purposes is indestructible.

The spokes are firmly held by compression. No bolts, pins or rivets pass through the spokes, neither are they threaded. They go into the wheel at **full** strength. Severe tests have proved the Kemp Metal Auto Wheel to be stronger than any other type of auto wheel made. In addition this metal wheel is **cheaper**.

Jobbers, dealers and garagemen will find the Kemp Metal Auto Wheel an exceptionally strong seller. It will revolutionize the auto wheel industry. As the General Manager of one of the best-known Canadian companies dealing in Motor wheels puts it, this wheel "has no competitor on this continent or in Europe." This wheel will be shown at these Motor shows:

Detroit, January 21-28.

Montreal, February 25 to March 5.

London, February 6-11

In the meantime write for particulars to

The Kemp Metal Auto Wheel Company Limited

122 Richmond Street West, TORONTO

No other wheel could have stood these tests

A set of Kemp Metal Auto Wheels were put to an extremely severe road test by experts from one of the largest automobile concerns. 40,000 miles of good, bad and indifferent roads were covered under practically all conceivable conditions, running through sand and clay and over ditches, rocks and curbs. The wheels stood up unharmed under the severest shocks, frequent application of the emergency brake, the actual ditching of the car and skidding against the curb. They were even driven **without tires or rims**, but when examined at end of test showed no sign of wear or of distortion of parts.

Have you ever heard of another wheel that could stand this?

A scientific test of a Kemp Metal Auto Wheel was made under the direction of Professor Young of the School of Practical Science, University of Toronto. The wheel was subjected to a vertical load of 7½ tons and a side pressure of nearly 2½ tons. The spokes were bent considerably and the felloe band buckled somewhat, but not one spoke was broken, the wheel still held together and when the pressure was removed showed substantial recovery of its former shape. Other types of wheels failed utterly under this test. It is of interest and importance to note that the test indicated a very marked resilience in Kemp wheels, considerably higher than that of wood wheels.

One or two minor details have been improved since these tests were made so that the Kemp Metal Auto Wheel of to-day is even stronger, safer and more durable than shown by the tests.

In view of the fast-decreasing supply of hickory wood for wheels the invention of the Kemp Metal Wheel is bound to prove a life-saver to the automotive industry. There will never be a better time than now to link up with the Standard Auto Wheel of the future. Write to-day for our proposition.

The Theory of Spark Timing. How to Test Timing. Connecting a Timer or Magneto Drive to a Motor. How to Know the Different Ignition Systems

By L. G. HEIMPEL

ies of sparks, the hottest one of which ignites the charge. This makes for excessive current consumption which is objectionable when the source of current is a battery. Since the crank of the motor travels over quite an arc while the vibrator sends its shower of sparks to the plug it is hard to say whether it was the first or last spark which ignited the charge. There is ground here for the contention that this form of spark is not fast enough for maximum efficiency in ignition.

In a system using the vibrator, connect a set of five dry cells to the buzz-bar terminals on the coil box, grounding one end on the engine, remove the oil pan from the bottom of the crank case, so that the crank is visible, then slowly crank the motor in the direction of rotation until the vibrator starts to buzz, then stop turning. The exact position of the crank when the vibrator started to buzz is the point at which the charge is ignited in the cylinders. This test can be performed with greater accuracy and ease if the spark plugs are removed to relieve compression. Repeat the test with the spark control lever first at full retard, then at full advance and note the point at which the buzz of the vibrator commences.

In single spark ignition systems such as are used on the majority of cars of to-day, the cover of the timer is removed so that the contact points are visible. The oil pan or crank-case bottom is removed so that the crank can be seen, then the engine is slowly cranked until the timer points separate. This will show the position of the crank when the charge is ignited. Repeat the test with various adjustments of the spark control lever to ascertain the timing of the spark for various settings of the lever.

In testing systems where a high tension magneto is used the procedure is the same as for the single break battery ignition though the operator must not forget that the impulse starter, where present, must not be used when this test is made.

To connect a timer or magneto drive to a motor proceed as follows:—With number one cylinder on head end dead

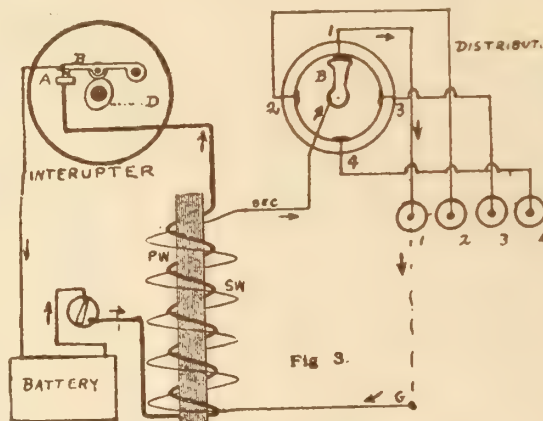


Fig. 3.—This system is similar to Fig. 2, except a "cam" of the type used on magnetos is employed, which "interrupts" the flow of current as the nose of cam raises the arm (B).

centre between compression and power strokes, with the distributor rotor on the segment leading to number one spark plug with spark lever at full retard and with the contact points in the timer or breaker box just opening, connect up the drive.

In starting strange engines in which it is doubtful which end of the spark control lever quadrant is the advance position, proceed as follows; ascertain the direction of rotation of the timer or armature shaft when the crankshaft is turned in the direction of rotation, then moving the timer housing in the same direction as the timer shaft turns, will be full retard, and moving the housing as far as possible in the opposite direction, will be full advance.

In our last article on this topic we took up the magnetic vibrator coil system such as is used on the Fordson tractor. This system is not used on any other make of tractor which shows that it is not a general favorite among designing engineers. A few of the points generally voiced against this system may be of interest.

(1) On an ordinary vibrator coil there is a danger of the "buzzer" not vibrating when the primary current is a weak one, as from a run-down battery. On the other hand too strong a current is likely to weld or at least burn the vibrator points.

(2) The spark from a vibrator coil is composed of a ser-

With the advent of the electric starter and electric lighting in automobiles came the storage battery as a source of current. Designers were not slow to use this source of current for ignition purposes instead of the magneto and to-day only comparatively few automobiles have magneto ignition.

The manufacture of electric systems has become a specialty and only very few auto makers make their own systems. The great majority of cars are equipped with ready-made electric systems such as we have in anyone of the following:—"Delco," "Atwater Kent," "Connecticut," "Remy," "Split-dorf," "Bosch," "Pittsfield" and others.

While the main principles of these systems remain the same, they can all be placed in one of two classes, the closed circuit class and the open circuit class.

In the system described in the last article the timer or commutator sent the primary or low-tension current to the individual vibrator coils in the proper order to feed a spark to the cylinders. The commutator of the Ford system then, not only makes electrical contact at the instant wanted but also distributes the spark to the various cylinders in their order—timing and distributing being taken care of in one device.

The intensity of heat procurable from the spark of a high tension coil depends upon the suddenness of the break in the low tension or battery circuit. To make a very hot spark the battery current must first be permitted to get a good start through the low tension coil, then must be very quickly stopped or interrupted. Where, in the vibrator coil the magnetic vibrator makes and breaks the circuit by a series of contacts and interruptions, so, in the single break system, the mechanical circuit breaker or timer makes and breaks the primary current flow.

In Figs. 1, 2, 3, are illustrated the three types of circuit breakers, the magnetic, the open circuit and the closed circuit types. In Fig 1 the commutator roller allows battery current to flow to the vibrator coil whenever a spark is wanted, the coil in turn sends the high tension current to the distributor which sends it to the proper cylinder at the right

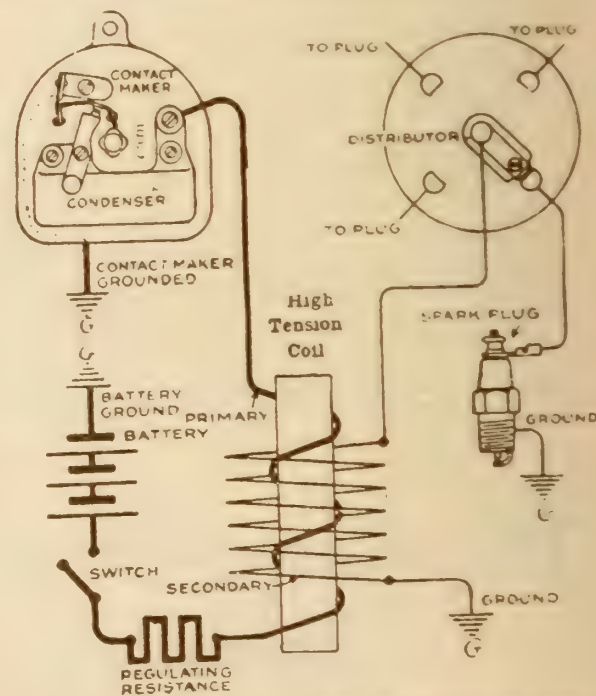


Fig. 4.—Showing the parts and wiring of a single-wire grounded return, closed circuit ignition system.

instant. Thus one coil and one vibrator feed all the cylinders while distribution of the spark is taken care of by the introduction of the distributor. In Fig 2 the current can again be traced from the battery through the switch and primary coil to the stationary electrode on the timer. Then

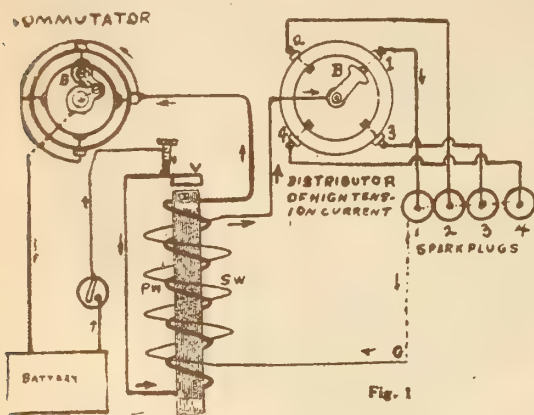


Fig. 1.—A distributor and commutator using a "vibrator" type of coil. This system is seldom used. Note the contacts are made by a roller. When contacts are closed, the vibrator on coil operates.

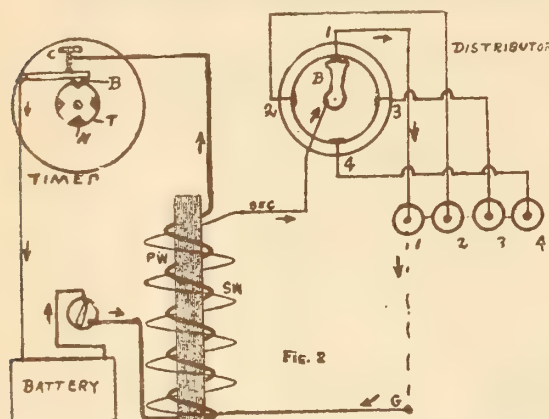


Fig. 2.—A similar system but coil is "non-vibrating." When brush or blade (B) is raised by cam (T) contact is made with screw (C) current flows only when contact is thus made.

lubrication systems in the best of shape, yet if the spark is late, the engine will overheat and lose power as though none of its parts were in good condition. We have in mind an instance of a 10-20 tractor which had been doing good service for four years and the magneto of which we know had never been removed. The engine was overhauled, which operation did not necessitate the removal of the magneto, and seemed to be in the best of condition. Yet when work was started in the spring the machine did not seem to have any power; it overheated, used a surprising amount of fuel and did not seem to have more than half her usual amount of power. We examined every part of her power plant but found everything O.K. Finally because we could find no other cause we decided to test the spark timing and found her firing on dead centre at full advance. The wear of four years between the various driving-gears and connections from the crank shaft to the armature shaft had been sufficient to rob the breaker box of all advance. The timing was immediately corrected and the change it made in the amount of work done per gallon of kerosene was surprising. Its efficiency increased four-fold.

The burning of the gases in the cylinder is usually referred to as an explosion, but an explosion is really a form of combustion or a fire. True it is of short duration, yet a measurable length of time elapses between the lighting of the gases by the spark and the maximum heat point. This period of time is of the same length in an engine running at 300 R.P.M. as it is in one running at 2000 R.P.M. Therefore, in order that the combustion of the charge may be at its hottest point just when the piston is leaving dead centre on the power stroke, it is necessary to ignite the charge before the piston reaches dead-centre. Thus in a single cylinder, slow speed heavy fly-wheel type stationary engine, turning perhaps 300 R.P.M. the spark must be administered from 15 degrees to 20 degrees before the crank reaches head end dead centre at the end of the compression stroke. While in a multi-cylinder motor-car engine when running 2000 R.P.M. or over, the gases are set on fire when the crank is 45 degrees and over from head end dead centre. The operation of igniting the charge before head end dead centre of the power stroke is reached by

whenever the cam (1) raises the contact spring (B) so that the contact points (P) touch, the current is allowed to flow through the circuit. Just as the current has found its way through the circuit the block on blade (B) drops into the notch (N) of the cam. The snapping action of the spring contact blade causes a violent break or interruption in the flow of primary current. The more violent this interruption can be made the "fatter" and hotter will be the induced spark at the plug.

It will be noticed though that the contact points are not in contact until just before a spark is wanted, the spring holds the points apart till the high spot on the cam forces the points together. There is therefore no current flowing excepting just before a break is needed, then the "make" and "break" occur in the same instant. This is known as the open circuit principle. Its advocates claim for this system maximum economy in battery current consumption,

which will be seen to be the case when the two principles are compared. Though it must be admitted that there are many makes using the closed circuit system used in Fig 3, with good satisfaction.

Where in Fig 2 the contact spring forced the points apart in Fig 3 the contact arm spring holds the points together, this allows current to flow until the points are forced apart by the action of the cam.

The Parts of a Modern Battery Ignition System

Fig. 4 shows the parts and wiring of a single-wire grounded return, closed circuit ignition system. The current should be traced from the battery through the switch, the resistance unit and coil to the timer. Whenever the contact points touch, the current flows back to the battery by way of the grounded return. That is, the movable contact arm is grounded to the metal of the car frame and the

current reaches the battery through a grounded terminal.

To protect the points of the contact maker in all makes of mechanical interrupters a condenser is necessary. It is wired "around the points" in the same way as is shown in Fig 2 of the article in the November issue. Usually this part is placed in the timer box as is shown in Fig 4. Excessive sparking at the contact points may be due to dirty contact points or poor contact due to burnt points but if the points are clean and bright and sparking does not cease, the condenser should be renewed.

The high tension circuit of this system can be traced from the secondary winding on Fig 4 to the distributor rotor or from whence it is distributed to the spark plugs on the cylinders. The other end of the secondary winding is grounded to the engine, so that when the spark jumps from the central electrode of the plug to the metal of the engine this circuit is completed.

Using a Census in the Selling of Separators

(Continued from page 13)

to Joe Kestner, Arch Windburn, Ham Giles, Fred Hecht, John Banks and ten others. I know you haven't much time to write letters (it takes too much time to run that little separator) so I am enclosing a postal card already written. Just drop it back in your mail box for the carrier to bring back to me. You don't need to sign it; if I get it back I will know that you want me to bring out a bigger separator at milking time and demonstrate what the bigger capacity will save you.

Yours for more money from cream,
J. J. Ingham."

I don't offer this letter as a model to follow in all cases. I simply offer it to make it easier to point out several important propositions in dealing with farmer customers. The first proposition is to gain the farmer's unbiased attention, you must begin to talk about something that personally interests him. This is done in this case by referring to the cows getting into the cornfield. This is followed up by another personal matter but which immediately presents the subject of a new separator; the prospect is told just why a new separator is needed.

Then the proposition is made in a very definite manner, the exact trade deal, the terms and the price are all given very briefly. Then confidence in the dealer is increased by mentioning the amount of business which serves as an excuse for writing a letter, as above instead of making a personal call.

Now notice how immediate action is secured. The dealer says that he knows Mr. Sanger hasn't got much time to write a letter and he puts in a parenthetical remark about the small separator; he tells Sanger that he is enclosing a postal card already written and signed, that need only to be dropped into the box to bring the dealer with a separator to the farm at milking time for a demonstration.

Perhaps you would like to know just what was on this postal card. Here is the way it was worded:

"J. J. Ingham.

Dear John:—

You bet I am tired of running that little separator. If you have got one that will skim my cream in one third the time, bring it right out. My cows have to be milked every night you know, so come any time, the sooner the better. I'll talk with you about the terms and the trade when you get here. But first I want you to show me that your bigger separator will actually save me about two-thirds of my time.

Very truly yours,
Frank Sanger."

Making a Separator Census

I think you might be interested in a summary of the separator census that was made by this dealer. The summary sheet is reproduced on this page and you will see that in his territory there are 1258 farms. Out of these 1258 he considers that there are 32 who are prospects for a No. 5 Separator; 46 are prospects for a No. 10 separator, 71 are prospects for a No. 12, 183 are prospects for a No. 15, and 33 of them are prospects for the No. 17, which makes a total of 359 prospects which the dealer believes might possibly be sold separators during the coming season.

Then follows information as to the number of separators in the territory by kinds. This gives the dealer an idea as to the standing of his particular brand in the territory. You will see that there are 827 separators in use in that territory. The number of farmers who have use for a separator but who have none is 441. And out of these he really considers that 139 are not prospects for separators at all.

There are 23 farmers who sell whole milk, and

so of course are not prospects for separators. There are 1014 who sell their cream to the creamery, three make butter for sale.

Checking over this summary of his census, this dealer concluded that he ought to sell 150 out of the 369 prospects during the present season, and of these he considered that he ought to sell 16 a No. 5 separator, 14 a No. 10, 37 a No. 12, 65 a No. 15, and 18 a No. 17. This estimate of course enables him to maintain the proper proportion in the stock he carries on hand; that is he will have the most of No. 15 separators on hand, and the next lowest No. 12 and so on.

In order to know just how near he is likely to

make the quota he has set for himself, he divides the 150 for the different months; the number is not divided equally between the different months, because his experience has shown him that the prospects are likely to be closed in varying quantities during the different seasons, so he has set aside a quota of 8 for January, 10 for February, 12 for March, 8 for April, 14 for May, 14 for June, 8 for July, 10 for August, 14 for September, 18 for October, 18 for November and 16 for December.

He follows this quota very carefully from month to month, and if he falls behind one month, he makes an unusual effort the next month to make what he has lost.

Keeping Sales Contest Enthusiasm at the Boiling Point

Printers' Ink Monthly

IT IS easy enough to arouse interest at the inception of a long-drawn-out contest, says *Printers' Ink Monthly*. To keep it at the fever point throughout, however, is something else again.

One method is that successfully employed by the Toledo branch of Willys-Overland, Inc. This contest was called the Vacation Contest. It covered two months. For its purpose it aimed at the stimulation of business during that period. The incentive was a prize sufficient to enable the winner to take a suitable vacation. L. G. Peed, of the Toledo organization, describes the contest in the following manner:

"We first drew to scale a large map of the Eastern vacation grounds. This map measured about six feet square. A route similar to those marked on automobile guide maps was then laid out. The line of the route was painted white and beginning at Toledo was graduated in points. Approximately seventeen hundred points covered the round trip. A special marker indicated a distance of twenty-five points, another one hundred points, and so on.

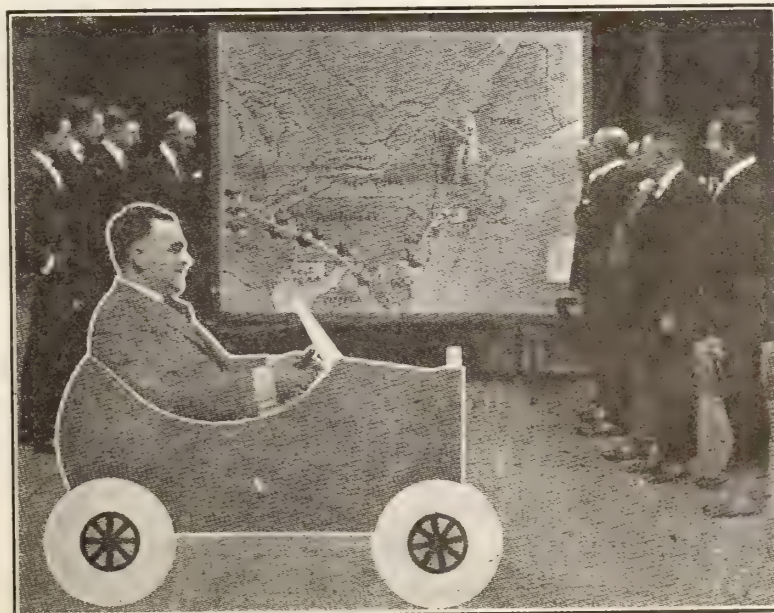
"The next step was to cut out of pasteboard some miniature automobiles. A photograph of each salesman was then secured, taken in a sitting posture, but holding his hands in front of him as though in a

driving position. These photographs were cut out with a pair of shears and pasted into the miniature automobiles. In that manner every salesman was represented at the start of the contest by a photographic likeness of himself sitting in one of the miniature automobiles.

"After that it was necessary to arrange a point system. Some of the easy sellers carried as high as fifty points. Others counted as high as one hundred and fifty points.

"As each salesman made a sale and made actual delivery of the car, we would move him to that point on the map route warranted by the number of points scored as a result of his sale. We had previously taken our average over a period of years for sales for May and June. We estimated our best salesmen would just about make a round trip.

"I do not say the contest was entirely responsible for the record made, but it is significant that two of our men almost made two complete round trips. I am certain many contests fall short of their mark because they are not visibly brought to the attention of the contestants at all times. We realized ours would not earn its salt if it were not so designed as to maintain the pace they usually inspire at their inception."



CAN YOU USE THIS?

L. G. Peed, branch manager for Willys-Overland in Toledo, staged a selling contest and as a means of visualizing the progress of each salesman had pictures taken of the contesting salesmen, mounted them on small cardboard cars. The map reproduced here and the story above will give all particulars.



Hank Smith Finds a Way to Sell Used Cars

By D. DICKENSON

"**S**AY, Hank," remarked Bill Withers to Hank Smith, one of the local garagemen at Anyoldburg, "I had the gosh darndest dream about you the other night."

"Do tell," replied Hank.

"Yep—I dreamt you had decided to hold 'get together meetings' once a week for the benefit of your customers, in fact any car owner, customer or not, and that you intended going after business this winter hot foot."

"Was the idea a success—in your dream, I mean?" asked Hank.

"You bet," said Bill, "and what's more, you made money. It was the novelty of the idea that appealed to me." Bill then proceeded to tell his story at length, but his wife suddenly came out of the post office and he had to leave.

"So long, Hank, think over what I've told you," was Bill's parting shot.

As for Hank, he slowly made his way back to the garage, sat himself down, and started to soliloquize. Had we been able to read his thoughts here is about how we would have picked up the arguments going on between his common sense and cautious nature.

"Bill said it was the novelty of the idea that appealed to him. Why not try something out of the ordinary," urged his common sense.

"Take no chances, it will never work," whispered caution. And so it went on for about half an hour. Suddenly Hank got up with a light of determination in his eye. Shouting to his helpmate, Sam Fisher, that he wouldn't be back for at least an hour, he made off for the local printers. What they discussed will never be told, but in the next day's mail many residents of Anyoldburg received this peculiar and interestingly worded note.

"You're not a car owner, are you? Of course you're not, that's why I've written you. No—I don't want to sell you a car—that is, against your will, but if you care to come down to my garage next Friday night, I'll prove to you that you should have a car, and can actually get one without embarrassing yourself financially, in the slightest. Don't run away with the idea that this is some new selling dodge. What I really want is YOU to come down for an evening's fun. I expect about 100 or more, and I've some mighty fine cigars waiting to be smoked, so be sure and trot along not later than 8 o'clock.

Yours for service,
Hank Smith."

Who could resist such an invitation, and strange to say Bill Withers received a letter, although he already was a car owner. At the bottom of his invitation was scribbled, "Consider yourself the guest of honor. You're the only car owner that's being asked, but seeing you're the one that was responsible for the idea, be sure and be on hand next Friday."

Needless to say Bill was very much on the job, in fact, so were about 90 others. One could see wonder written on every face, but Hank didn't keep them long in doubt.

"Well, boys," he commenced, after everybody had lighted up, "I've got you all guessing. Don't deny it for I see it in all your faces. However, that's just what I wanted, so I'm satisfied. There's a saying to the effect that it's best to put your cards face up on the table if you want to bring things to a show down, so here goes my cards, figuratively speaking.

"So far every winter I've had some pretty tough sledding to make things meet, and from present outlook, this coming one will be no exception, that is, if I'm content to sit back and let it be. However, I've made up my mind that all this inactivity during the winter months is unnecessary, so I've decided to get out after business in earnest. In fact this little gathering is one of my ideas."

"Hope you're not expecting to sell me a car, Hank," chimed in Ross Bolton, and everybody laughed.

"Well now, Ross," replied Hank, seriously, "that's just what I'm hoping to do, but don't rush me, let me tell this idea in my own way. It's like this—" continued Hank, "one of the sections of my business which falls flatter than the newly-weds pancakes, is the used car business. Why this should be, I don't know, because winter is as good a time as any to buy a used car."

"You said it, Hank," interrupted Tom Watson. "Winter's as good a time as any, BUT, any time at all is a poor time to buy a second-hand car."

"You bet," chimed in another. "Second hand cars and yours truly will never mix. You buy the darn thing and then go broke the rest of your life keeping it in repair."

"True," answered Hank quietly,—"that is, if you are foolish enough to buy a second-hand car, and not a used car, without a guarantee."

"A what?" shouted practically everybody.

"I said a guarantee."

"I know Hank, but listen," said Si Watkins, "who ever heard of anyone being foolish enough to give a guarantee with a second-hand car?"

"Call me foolish if you like," came back Hank, "but I for one will give you a guarantee on any used car you buy in this garage."

"Quit your fooling, Hank," laughed Tom Watson.

"But I'm not fooling," answered Hank seriously, "and what's more, I don't like this term 'second-hand car.' A car may be used, yet it doesn't necessarily follow that it's a second-hand car. It may be just as good as new, yet be a used car."

This thought had them guessing for a moment, so Hank followed up his advantage.

"Now look here boys," he said suddenly, "I want to test you out to-night, and I'm going to ask you to be as frank with me as I have been with you. How many here would have bought a used car long ago had they been sure it was in good shape?" Several replied in the affirmative, so Hank continued:

"When I wrote you gentlemen to-night, it was because I knew you were all live prospects who wanted, but couldn't afford to buy, new cars. I knew you had a good use for a car, yet refused to take chances on second-hand machines. I knew for a fact that some of you had actually been pricing second-hand cars, that really were second-hand, and had been scared off in the nick of time. One or two of you here have actually been stung on such deals, and are thinking right now, that once bitten, twice shy."

Two or three looked somewhat guilty, but Hank continued.

"What I want most of all is your confidence. I want to convince you that I'm in dead earnest, and most thoroughly believe that used cars can be sold with perfect safety on a guarantee basis. At the present time I have about twenty used cars on my hands, and I'll guarantee any one of them for six months—not merely a guarantee by word of mouth, but a written promise to keep the car in repairs for six months, always providing of course, that the repairs are the fault of the car and not of the driver."

"How can you afford to take chances like that?" chimed in Bill Withers, anxiously, for he liked Hank, and hated to see him start something he couldn't finish.

"Don't worry about me, Bill," laughed Hank, "I'm taking no chances. I'm merely proving I have confidence in my used cars. In fact my idea and aim is to take the danger out of used cars. Every used car in my garage has been thoroughly overhauled, and is guaranteed to be in first-class shape. For example,

what should a man look for when buying a used car?"

"If I were going to purchase such a car," continued Hank, "the first thing I'd examine would be the upholstery and outside appearance. This may sound foolish, but here's my idea. If a garage owner, or private owner, takes care of his car on the outside, its ten chances to one he also pays good attention to the engine and other inner works. However, it doesn't pay to take chances, so the next thing I'd do would be to get the owner to start the engine, throttling her down very fine, and running her idle. I wouldn't be impressed by his pulling the gas lever up and down and letting the engine roar and snort. And if I didn't know a good engine from a dud, I'd take someone with me who did. Supposing, however, that I do know what a good engine should run like, the next step would be to listen carefully for knocks while running idle. After this I would insist on a trial run under the worst possible conditions, then if I was satisfied with the car's performance, and the price was right, I'd buy. If anything looked shady, or if I wasn't quite satisfied with the sound of the engine, I wouldn't condemn the thing before giving the owner a fair show. I'd offer to pay him half the cost of disassembly, as a sign of good faith, and ask him to tear down the works for my inspection. In the event of my buying, we'd both be satisfied, and if the owner knows the engine to be O.K. there is nothing to fear on his part. Should the engine be in poor condition, all I would be out is a few dollars."

"That's mighty good dope," remarked Tom Watson.

"Sure it is," replied Hank, "and in this case I'm willing to take my own medicine. All these tests I've spoken of, I'm willing to go through, even to tearing down the engine. Incidentally I won't ask anyone to share half the expense, but I'm sure that all engines are perfect, for I superintended the overhauling myself."

It was plain to be seen he had them thinking. "Did you ever think," he continued, "that you can get more for your money by investing in a used car than a brand new car? Until the day comes when you can comfortably afford a new car, it's much better to be content with a good used one. It does not entail such an outlay of money, and is a good investment all around. I cannot honestly advise you to buy a big wallowing 7-passenger car, unless you need all that room, for to my mind a nice light car is the thing. It is more economical in many ways.

"The depreciation on a used car is less than on a new one, and providing you know it's in good shape you'll save money all around. Of course, to buy a 'pig in a poke' is foolish, and although it may sound harsh, I'll say this, that whoever gets stung on such a deal have themselves to blame. You can easily purchase a used car, run it a year or two, and turn it in for another, or even a new car if your finances are in better shape by then. In the meantime you have the benefits of a car that takes you to and fro just as quickly and economically as any new car would ever do."

"You almost convince me, Hank," said Si Slattery. "I need a car in the worst way, but simply cannot afford a new car at present. I've almost bought on several occasions, but always hated to take a chance on landing some old bunch of junk. If you say you'll guarantee a used car for six months it's good enough for me, and yet—honestly—I'm so afraid of second hand cars that I'm all up a tree just what to do."

"Tell you what we'll all do," said Hank. "We will all start on a tour of inspection, look over the cars I've got. I won't say a word about sales, but I'll let you boys figure this thing out for yourselves."

It wasn't long before everyone was looking at Hank's stock of used cars, some casually, while others

(Continued on page 31)

Specifications of Cars Sold in Canada

Owing to Exchange Fluctuations and Different Quotations at Different Points in Canada
Prices Have Been Omitted From This Table

NAME AND MODEL	Wheel-base	Engine Make	Cylinders Bore and Stroke	Radiator	Lubrication	Carburetor	Starting and Lighting	Ignition	Battery	CLUTCH		Brake-lining	Tires
										Type	Make		
Auburn 6-51	121	Cont.	6-3 1/4x4 1/2		Force Feed	Rayfield	Remy	Remy	Exide	d-disk	B. & B.		32 x4.
Cadillac 61	132	Own.	8-3 1/4x5 1/4	Own.	Force Feed	Own.	Delco.	Delco.	Exide	d-disk	Own.	Raybestos and Thermoid	33x5.
Case X	122	Cont.	6-3 1/4x4 1/2			Rayfield	Bijur	Delco.	Willard	d-disk	Own.		34x4 1/2
Chalmers 35-C	117	Own.	6-3 1/4x4 1/2		Cir. Splash	Stromberg	Auto-Lite	Remy	Prest-o-Lite	disk	Own.		32x4.
Chalmers 35-C	122	Own.	6-3 1/4x4 1/2		Cir. Splash	Stromberg	Auto-Lite	Remy	Prest-o-Lite	disk	Own.		33x4 1/2
Chandler Six	123	Own.	6-3 1/4x5	Cellular	Cir. Splash	Rayfield	Bosch	Bosch		plate	B. & B.		33x4.
Chevrolet 490	102	Own.	4-3 11/16 x4		Cir. Splash	Zenith	Auto-Lite	Remy	Willard	cone	Own.		30x3 1/2
Chevrolet FB	110	Own.	4-3 11/16 x5 1/4		Cir. Splash	Zenith	Auto-Lite	Remy		cone			32x4.
Cleveland 40	112	Own.	6-3 1/4x5		Cir. Splash	Stromberg	Bosch	Bosch	Prest-o-Lite	plate	B. & B.		32x4.
Cole 890	127 1/4	Northway	8-3 1/4x4 1/2	McCord	Cir. Splash	Johnson	Delco.	Delco.	Willard	cone	Northway	Thermoid	33x5.
Columbia Challenger 6	115	Rutenberg	6-3 1/4x5		Cir. Splash	Stromberg	Auto-Lite	A. K.	Prest-o-Lite	d-disk	B. & B.		32x4.
Columbia CC	115	Cont.	6-3 1/4x4 1/2		Cir. Splash	Stromberg	Auto-Lite	A. K.	Prest-o-Lite	d-disk	B. & B.		32x4.
Dodge Brothers	114	Own.	4-3 1/4x4 1/2	McCord	Cir. Splash	Stewart	North East	North East	Willard	d-disk	Own.		32x4.
Durant A22	109	Own.	4-3 1/4x4 1/2		Cir. Splash	Tillotson	Auto-Lite	Auto-Lite	U. S. L.	plate	Own.		31x4.
Durant B22	123	Own.	6-3 1/4x4 1/2										
Earl 40	112	Own.	4-3 7/16 x5 1/4	Sparton	Cir. Splash	See	Auto-Lite	Connecticut	U. S. L.	d-disk	B. & B.		32x4.
Essex 108 1/2		Own.	4-3 1/4x5		Cir. Splash	Own.	Bosch	Bosch	Exide	o-disk	Own.		32x4.
Ford T	100	Own.	4-3 1/4x4		Cir. Splash	Holley	Own.	Own.	Exide	o-disk	Own.		30x3 1/2
Franklin 9-B	115	Own.	6-3 1/4x4		Pressure	Own.	North East	A. K.	Willard	plate	B. & B.	Thermoid	32x4.
Gardner T-R. & G.	112	Lycoming	4-3 1/4x5	Fedders	Splash	Carter	West.	West.	Willard	plate	B. & B.	Testbestos	32x5 1/2
Gray-Dort 18-14	108	D-Ly.	4-3 1/4x5		Cir. Splash	Carter	Bosch	Connecticut	U. S. L.	d-disk	Detlozf.		31x4.
Haynes 75	132	Own.	6-3 1/4x5 3/16	Fedders	Pressure	Stromberg	Leech-Neville	Kingston	Willard	d-disk	B. & B.	Testbestos	34x4 1/2
Haynes 55	121	Own.	6-3 1/4x5	Fedders	Cir. Splash	Rayfield	Leech-Neville	Kingston	Willard	d-disk	B. & B.	Testbestos	33x4.
Haynes 48	132	Own.	12-2 3/4x5	Fedders	Pressure	Rayfield			Willard				
Hudson Super Six	126	Own.	6-3 1/4x5		Cir. Splash	Own.	Bosch	Bosch	Exide	o-disk	Own.		34x4 1/2
Hupmobile Series R	112	Own.	4-3 1/4x5 1/4	McCord	Force Feed	Stromberg	West.	A.K.	Willard	d-disk	Own.		32x4.
Jordan MX	120	Own.	6-3 5/16 x4 3/4		Force Feed	Stromberg	Delco.	Delco.	Willard	plate	Detroit		32x4.
Jordan F	127	Cont.	6-3 1/4x5 1/4		Force Feed	Stromberg	Delco.	Delco.	Willard	plate	Detroit	Thermoid	32x4 1/2
Kissel 4	124	Own.	6-3 5/16 x5 1/4	Sparton	Cir. Splash	Stromberg	Remy	Remy	Willard	d-disk	Warner		32x4 1/2
Lexington 1	122	Ansted	6-3 1/4x4 1/2		Force Feed	Rayfield	G. & D.	Connecticut	Willard	d-disk	Ansted		32x4.
Lexington 128		Ansted	6-3 1/4x4 1/2		Force Feed	Rayfield	G. & D.	Connecticut	Willard	disk	Ansted	Thermoid	32x4 1/2
Liberty 10-11	117	Own.	6-3 1/4x5		Force Feed	Stromberg	Wagner	Wagner	Prest-o-Lite	d-disk	B. & B.		32x4.
Lincoln 130		Own.	8-3 1/4x5	McCord	Force Feed	Stromberg	Delco.	Delco.	Exide	d-disk	Own.	Raybestos	33x5.
Marmon 34	136	Own.	6-3 1/4x5 1/4	Own.	Force Feed	Stromberg	Delco.	Delco.	Willard	d-disk	Own.		32x4 1/2
Maxwell 109		Own.	4-3 5/8 x4 1/2		Cir. Splash	Eagle	Auto-Lite	Simms	Prest-o-Lite	cone	Own.	Raybestos	31x4.
Moon 6-48	122	Cont.	6-3 1/4x4 1/2	Fedders	Force Feed	Rayfield	Delco.	Delco.	Exide	d-disk	B. & B.	Raybestos	32x4.
Moon 6-75	135	Cont.	6-3 1/4x5 1/4		Force Feed	Rayfield	Delco.	Delco.	Exide	d-disk	B. & B.		32x4 1/2
McLaughlin 1922-34-35-36-37	109	Own.	4-3 3/4x4 3/4		Cir. Splash	Marvel	Delco.	Delco.	Exide	d-disk	Own.		34x4.
McLaughlin 1922-45-6-7	118	Own.	6-3 1/4x4 1/2		Cir. Splash	Marvel	Delco.	Delco.	Exide	d-disk	Own.		33x4.
McLaughlin 1922-47-9-50	124	Own.	6-3 1/4x4 1/2		Cir. Splash	Marvel	Delco.	Delco.	Exide	d-disk	Own.		34x4 1/2
Nash 691	121	Own.	6-3 1/4x5	Long	Spl. & F. feed	Marvel		Delco.	Willard	plate	B. & B.		34x4.
Nash 682	127	Own.	6-3 1/4x5			Marvel							
Nash Four 41-4	112	Own.	4-3 1/4x5			Schebler				plate	B. & B.		
Oldsmobile 43-A	115	Own.	4-3 11/16 x5 1/4		Force Feed	Zenith	Auto-Lite	Remy	Willard	d-disk	B. & B.		32x4.
Oldsmobile 46	122	Own.	8-2 7/8 x4 1/2		Force Feed	B. & B.	Delco.	Delco.	Willard	cone	Own.		33x4 1/2
Oldsmobile 47	115	Own.	8-2 7/8 x4 1/2		Force Feed	Johnson	Delco.	Delco.	Willard	d-disk	B. & B.		32x4.
Overland 4	100	Own.	4-3 1/4x4		Cir. Splash	Tillotson	Auto-Lite	Connecticut	Prest-o-Lite	plate	Own.		30x3 3/4
Packard Single Six	116	Own.	6-3 1/4x4 1/2		Force Feed	Own.	A.K.	Delco.	Willard	d-disk	Own.		34x4 1/2
Packard Twin Six	136	Own.	12-3x5		Force Feed	Own.	Bijur	Delco.	Willard	d-disk	Own.		35x5.
Paige 6-44	119	Own.	6-3 1/4x5		Cir. Splash	Stromberg	Remy	A.K.	Willard	plate	B. & B.		32x4.
Paige 6-66	131	Cont.	6-3 1/4x5		Force Feed	Rayfield	Remy	A.K.	Willard	plate	B. & B.		33x4 1/2
Pierce-Arrow	138	Own.	6-4x5 1/4	Own.	Force Feed	Own.	Delco.	Delco.	Willard	d-disk	Own.	Multibestos	33x5.
Premier 6-D	126 3/4	Own.	6-3 1/4x5 1/4	McCord	Force Feed	Johnson	Delco.	Delco.	Willard	d-disk	B. & B.	Raybestos	32x4 1/2
Reo T-6-B	120	Own.	6-3 3/16 x5	Own.		Rayfield	North East		Willard	d-disk	Own.		33x4.
Roamer 6-54-E	128	Cont.	6-3 1/4x5 1/4	Hayes		Stromberg	Bijur	Bosch	Columbia	plate	B. & B.	Raybestos	32x4 1/2
Roamer 4-75-E	128	Dues.	4-4 1/4x6	Hayes									32x4 1/2
Rolls-Royce	143 3/4	Own.	6-4 1/2 x4 1/4	Own.	Force Feed	Own.	Bijur	Own.	Exide	cone	Own.		33x5.
Saxon 125	112	Gray	4-3 1/4x5			Stromberg	Wagner	Wagner	Prest-o-Lite	d-disk	Detlof		32x4.
Stephens 90	122	Own.	6-3 1/4x4 1/2		Force Feed	Tillotson	Auto-Lite	Connecticut	U. S. L.	d-disk	B. & B.		33x4 1/2
Studebaker Light Six	112	Own.	6-3 1/4x4 1/2		Cir. Splash	Stromberg				d-disk	Own.		32x4.
Studebaker Special Six	119	Own.	6-3 1/4x5		Cir. Splash	Stromberg	Wagner	Wagner		plate	Own.		32x4.
Studebaker Big Six	126	Own.	6-3 1/4x5		Cir. Splash	B. & B.	Wagner	Wagner		plate	Own.		33x4 1/2
Velie 58	115	Own.	6-3 1/4x4 1/2		Force Feed	Stromberg	Bijur	A.K.	Willard	plate	Dooley	Raybestos	32x4.
Velie 48	115	Cont.	6-3 1/4x4 1/2		Force Feed								32x4.
Velie 34	112	Falls	6-3 1/4x4 1/2		Force Feed								32x4 1/2
Westcott A-44	120	Cont.	6-3 1/4x4 1/2		Force Feed		Delco.	Delco.	Willard	plate	B. & B.		32x4.
Westcott C-48	125	Cont.	6-3 1/4x5 1/4			Rayfield	Delco.	Delco.		plate	Warner		32x4.
Westcott C-38	118	Cont.	6-3 1/4x4 1/2			Rayfield	Delco.	Delco.		plate	B. & B.		33x4.
Willys-Knight 20	118	Own.	4-3 5/8 x4 1/2	Own.	Cir. Splash	Tillotson	Auto-Lite	Connecticut	U. S. L.	plate	Own.		33x4.

ENGINE MAKE: Cont., Continental; Dues., Duesenberg. LUBRICATION: Cir. Splash, circulating splash. STARTING AND LIGHTING: A. K., Atwater-Kent; G. & D., Gray & Davis; West, Westinghouse. IGNITION: A.K., Atwater-Kent; West., Westinghouse. CLUTCH TYPE: d-disk, dry-disk. CLUTCH MAKE: B.&B., Borg & Beck.

Automotive Accessories and Implement Equipment

EMPRESS HIGH-PRESSURE LUBRICATING SYSTEM

THIS is a practical system of lubrication for the chassis which can be operated with one hand. It handles all grades of grease and oil and uses the pressure system.

The principal feature of this system is that the pressure is built up in the gun by holding it in check through the operation of the small valve in the nozzle. When the nozzle of the gun is inserted in the grease cup or receptacle, a small pin contained in the grease cup projects into the nozzle, opening the check valve and allowing the grease held under pressure to be released and ejected into the cup, and through it into the bearing. The pressure built up in the gun by one turn of the handle is from 500 to 800 lbs., and this pressure the makers contend is sufficient normally to inject grease into any bearing. From the fact that the handle of the gun does not have to be turned at the time the grease is ejected, it will readily be seen that this gun is easy to handle in inaccessible places; the handle is simply given a turn as far as it will and then with one hand the nozzle of the gun is inserted in the cup or receptacle, when the grease is automatically discharged.

Oil can be used and also kerosene in flushing out a bearing, and in case the gun is left at home or misplaced, oil may be used in the cups from an ordinary oil can. Adapters can be furnished to fit all standard grease cups or special cups on any make of car. The cups are furnished in straight connections and 45 and 90 deg. elbow connections, and all have tight-fitting dustproof caps. There is a special outfit for Ford cars and trucks. Made by Bowen Products Corp.

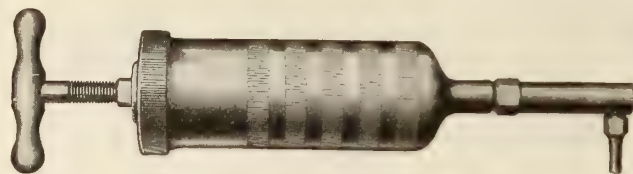
TWO IN ONE GASKET

THIS gasket has been made heretofore in a different form but the present is an improvement having a double thickness pilot ring. It is called 2 in 1 because it combines the gasket with the pilot ring which fits into the inside of the exhaust or intake manifold holding it firmly in place until the manifold is tightened. The two in one gasket has been made for Ford cars but it is now being made for Buick, Maxwell, Overland and Studebaker as well. They come in cartons of 100. This follows the style of the regular McCord copper asbestos gasket, but the pilot ring is the distinguishing feature and the new form being double, makes the gasket very durable and sturdy. It is manufactured by McCord Mfg. Co.

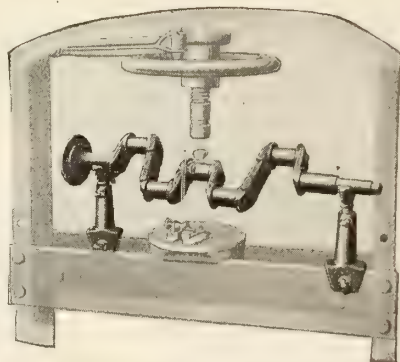
VISIBLE GASOLINE STRAINER

THIS strainer has a large area mesh, and is adaptable to all vacuum gasoline tanks.

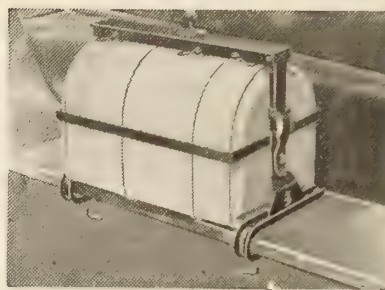
It is installed by removing the present inlet elbow in the top of the tank and inserting an elbow which comes with the strainer. The flange of the strainer is attached to the tank by the two screws which hold on the top of the tank. It is made by the Imperial Brass Mfg. Co.



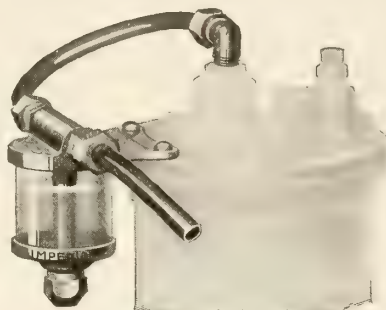
Empress High-Pressure Lubricator.



Weaver Truing Fixture.



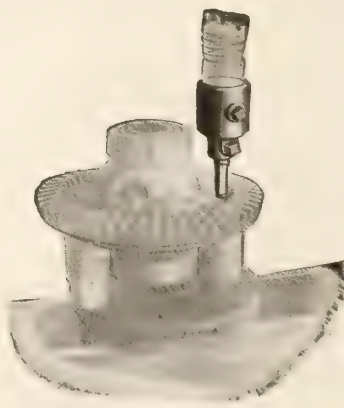
Runningboard Service Unit



Visible Gasoline Strainer



Pat. Aug. 16, 1921
Other Patents Pending
Two in One Gasket



Weaver Riveting Tool

RUNNINGBOARD SERVICE UNITS FOR GASOLINE, OIL AND WATER

THE Boyco service units consist of cans for gasoline, oil and water provided with a strong clamp and holder securing them to the runningboard of the car. The latest type of this device has an all-steel frame which holds the units firmly in place. The upright at either end of the frame continues to the top of the cans where a steel channel bar hinges and extends across the screw tops of the cans, fitting snugly with the caps. At the end opposite its hinge, this channel bar is locked in place by an ingenious, quick-acting steel lever lock. Once clamped down in position the tension centered in this lock is such, the makers claim, as to remove all possibility of its loosening, flying open, or permitting the cans to rattle. Each can is provided with a screw top, and inserted in one of the cans is a flexible tube with a screw end, fitting the same screw that carries the top. This flexible tube makes it possible to pour the contents of the can into otherwise inaccessible places. They are made by Boyle Mfg. Co.

LITTLE SIOUX VALVE LATHE

THIS new addition to the Sioux family is a compact little hand machine which has all the exactness of a large lathe. A graduation plate with the angles 30, 45 and 60 degrees plainly etched enables the operator to adjust to these degrees accurately. It is also capable of making cuts at any angle. The tool holder is adjustable in and out but there are no up and down adjustments. The cutter cannot get out of cutting line with the valve. The cutter is circular in form and is made of a special steel capable of cutting hard tungsten steel. Its circular shape provides unlimited cutting edges. A new point of contact is obtained by loosening the small screw and turning the cutter. The cutters can easily be sharpened. There is a center adjustment for centering the valves when refacing them. Made by Albertson and Co.

WEAVER TRUING FIXTURES

THE Weaver truing fixtures are designed especially for use with the Weaver forcing press, in straightening shafts, axles, studs, etc. The fixtures consist of two V blocks which are held rigidly to the cross-bars of the press by heavy set screws. They are adjustable up and down and the whole assembly is movable from side to side on the cross-bars. When a shaft is to be straightened it is seated in the V blocks and the high-point determined by a test gauge; the screw of the press is then run down in contact with the shaft and sufficient pressure is exerted to spring the shaft into correct alignment. The fixtures are constructed amply strong to meet the requirements of the work for which they are intended, the V blocks being made of steel. Made by the Weaver Mfg. Co.

Black and Decker ELECTRIC, PORTABLE DRILLS *and* GRINDERS

are Labour Savers and Money Makers for
THE GARAGE MAN

*Ask for full information on our Six Months
Payment Plan*

KEYES SUPPLY CO. LIMITED

Wholesale Automotive Equipment

282 Sparks St. OTTAWA Queen 880



BURD High Compression PISTON RINGS

The World's Standard of Efficiency

permanent efficiency, therefore give better service efficiency—maximum power at the lowest expense for gasoline and oil—and prolong the life of the motor by keeping it clean and free from carbon. They are unequalled for lasting resiliency and permanent efficiency, therefore give better service at the end of six months than when first installed.

Backed By This Guarantee

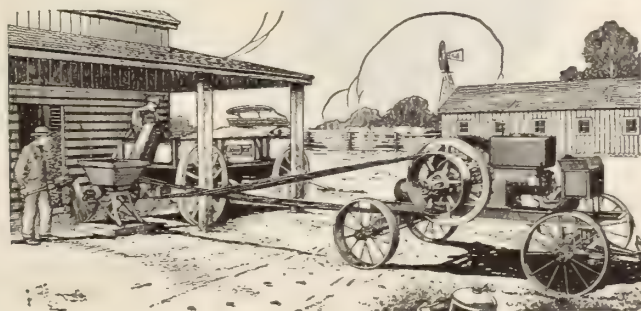
Every Burd High Compression Piston Ring is **Guaranteed** to be free from defects in material and workmanship—and warranted to give more power, with less fuel consumption, than any other piston ring—when installed in cylinders that have not been warped or scored—or your money will be refunded after thirty days' use.

For sale by jobbers everywhere.

BURD RING SALES COMPANY of CANADA
322 McIntyre Block, Winnipeg, Man.
Burd High Compression Ring Co.,
Rockford, Ill., U. S. A.

Why It Pays You To Sell John Deere Quality

It pays you to handle a quality line like the John Deere. It means you can absolutely guarantee the implements you sell and be certain of satisfied customers. Then, too, John Deere implements have features that appeal at once to the farmers and make sales certain.



Take "Waterloo Boy" Kerosene Engines for example. Their reliability and economy mean ample low cost power and the wide range of sizes from two to twenty-five horsepower in stationary and portable types meets every requirement.

Our new prices for 1922 are ready. Let us send you full particulars about this quality line.

JOHN DEERE MANUFACTURING CO., LTD.

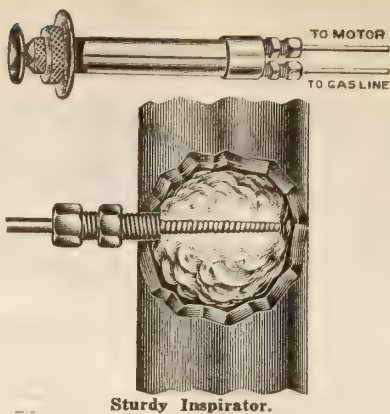
WELLAND



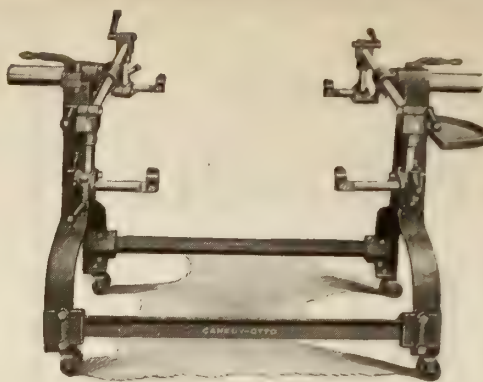
ONTARIO

STURDY INSPIRATOR FOR PRIMING ENGINES

THE Sturdy Inspirator is designed for priming engines and is automatic and fool proof. The packing used is of such a nature that it is not affected by gasoline. Air is taken in through a hole in the stem which is covered or closed when the handle is pushed in the full length. Inside the barrel, the plunger and valves are so arranged that a measured amount of air and gasoline is taken in on each suction stroke and discharged into the manifold on the compression stroke. The atomizer or spray nozzles furnished are of two types, one giving a disk shape or radial jet, the other bell shaped. Their use is determined by the type of manifold. The inspirator is automatically self-closing, preventing it from taking in raw gasoline through the connections. Made by the Gray-Hoffman Co.



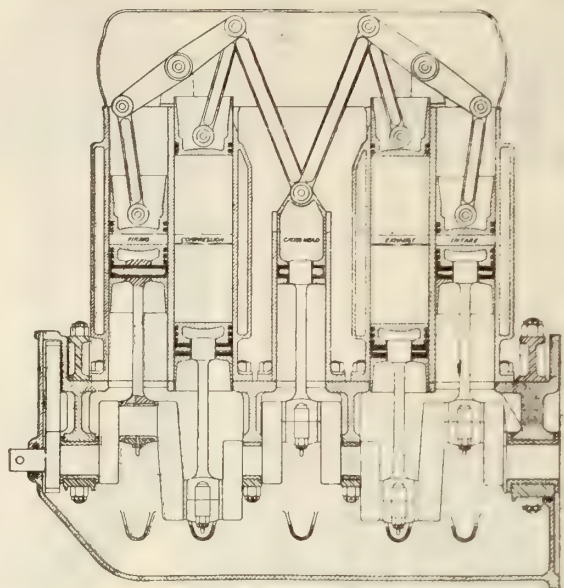
Sturdy Inspirator.



C. O. Universal Stand.

C-O UNIVERSAL MOTOR STAND

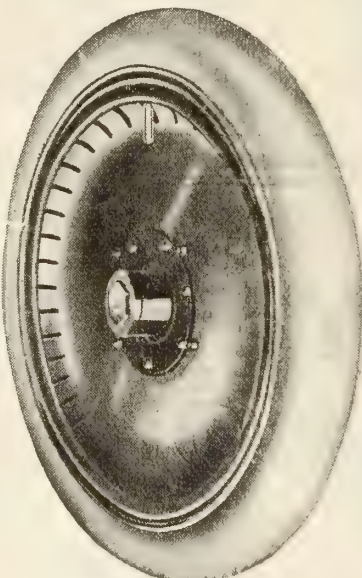
THIS stand is designed to hold any engine from the very heaviest truck to the smallest motorcycle motor. The adjustments of this stand are many. By moving the two main shafts towards the center, nearly any size engine can be accommodated, but should this fail, there are adjustments at the bottom which will allow the whole end sections to be moved toward the center. At the ends of the cross-arms other joints and clamps are provided, which make it possible to attach to any form of engine support, and when these supports are all connected, the engine may be balanced so that a workman may swing the engine over at will with very little effort. This stand is manufactured by the Canedy-Otto Mfg. Co.



Double Piston Gasoline Engine

PERFECTION LAMINATED STEEL DISC WHEEL

THIS wheel is made up of laminations of steel discs welded together giving great strength and lightness. The shape and "cut outs" in the outer diameter of the disc next to the rim, as shown in the illustration, allows for considerable resilience in this type of wheel, the load being suspended as in a wire wheel. It is claimed that this resilience allows for easier riding and tire economy. The valve stem extends through the outside, facilitating inflation of tires. These wheels can be quickly mounted on the wood wheel hub and are demountable for quick tire changes. They come in sets of five. Made by Perfection Motor Parts.



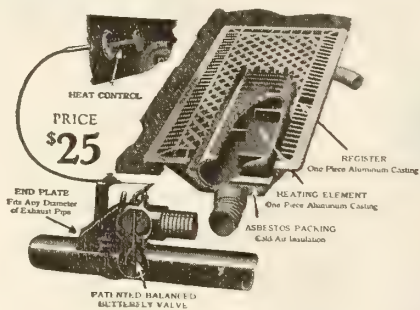
Laminated Disc Wheel.



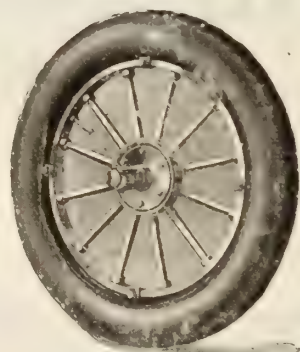
Red-Cup Lubricator

MILES GENERATOR TOOL

THIS tool is for assembling and disassembling Ford generator and starting motors. It holds the generator for driving out the pinion pin rivet, also for replacing the pin and riveting it. It forces the shaft out of the pinion and forces the pinion back onto the shaft. It also takes the screws out of the field coils and replaces them without injury to the slots in the screws. The tool consists of a frame with slotted or grooved standards and a screw. The grooved standards receive plates with different size and shape of slots, which hold and protect the different parts when forcing them off and on. The tool bolts to the bench. It is made by Miles Mfg. Co.



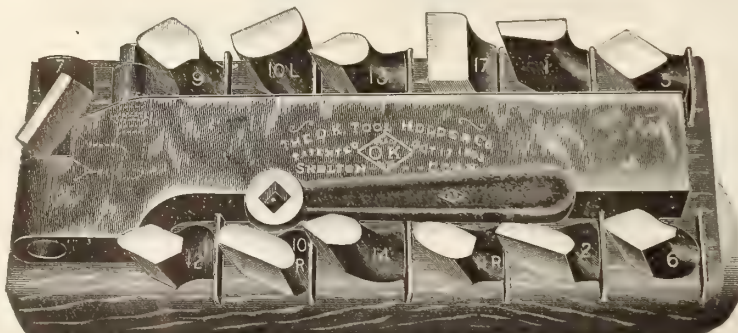
Chanson Heater



Kemp Metal Auto Wheel.

O. K. LATHE TOOL SET

THIS set consists of a holder, block, and assorted tools. The cutters are hydraulic and drop forged, and are made from the highest grade of high speed steel. This system of holders and tools is designed to provide the repair and machine shop with a complete set of tools for all operations and to do away with the necessity of forging. With this system, it is claimed, the operator is always kept at his work as he can have duplicate tools always ready for use by his side. Made by the O. K. Tool Co.



O. K. Lathe Tool Set

RED-CUP TRANSMISSION LUBRICATOR FOR FORDS

THE Red-Cup Lubricator is designed to provide proper lubrication for the transmission band linings on the Ford car. There are no complicated parts to become lost or get out of order. The entire device is simply constructed. It consists of a plate replacing the transmission cover. A container operated by a key holds a lubricating compound which is released in small quantities from time to time by the key in such a position that it goes directly on the transmission drums. The makers claim this device eliminates chattering and increases the life of the bands. It is made by the Red-Cup Lubricator Co.

NEW DOUBLE PISTON GASOLINE ENGINE FOR AUTOMOBILES, TRUCKS AND TRACTORS

THE United Iron Works and Machine Co., 123 Bay St., Toronto, are manufacturing a new type of gasoline engine, for cars, trucks and tractors of the four cylinder, four-cycle type, with double pistons in each cylinder. The principal advantage claimed for this engine is economy in fuel, which is effected by the greater range of temperatures consequent on a higher ratio of expansion. The power impulse of the top pistons is tied in or equalized with the bottom pistons by means of reversing links, and a central cross-head which is connected with a central web of the crankshaft. Tests are being conducted with a Ford car and satisfactory results have been achieved.

KEMP METAL AUTO WHEEL

THE Kemp Metal Auto Wheel Co., Toronto, are placing on the market a new wheel which is a departure in auto wheel construction. The superior strength of a tube compared with any other section of the same weight and material is well known, and this abundant strength is made use of in the Kemp wheel. The spokes are firmly held by compression without threading, or rivetting, and most of the parts are produced by stamping from steel. Rubber cushions under considerable compression and completely enclosed in metal washers, are used at the end of each spoke, between the spoke and the felloe, giving resiliency to the wheel. Hub plates of special design hold the spokes in position. The outer sections are removable to permit interchanging of spokes if desired.

CHANNON CAR HEATER

THE radiator of this heater is a one-piece gas-tight aluminum casting, so designed as to form a solid bottom in the pan. A balanced double butterfly valve permits the valve to set at any angle opening, thus instantaneously regulating the volume of heat being brought to bear upon the heating unit of the radiator. This control is accomplished from the instrument board similar to the choke control on a carburetor and is operated just as easily. Asbestos packing is used to insulate. One valve fits all sizes of pipe. Two pair of end plates are furnished for fitting any diameter of pipe. The heater is furnished with five feet of control wire and five feet of flexible tubing, so that the valve can be set at the most convenient place on the exhaust pipe. Made by Channon-Hughson Co.

RED ARROW TIRES, LTD., MAKING RAPID STRIDES

WORK on the erection of the new factory for Red Arrow Tires, Ltd., Peterboro, is well under way. The first unit of the plant will be 203 feet in length, and will vary from 65 to 90 feet in width. It will have approximately 50,000 square feet of floor space. Its production capacity will be 500 tires a day. The plant is expected to be in operation this spring, and will give employment to between 400 and 500 men.

Auto and Implement Manufacturers Oppose Change on Lien Notes

PROTESTING against the suggestion that the Conditional Sales Act be changed to make it compulsory to register all lien notes covering articles sold in this manner with County Court clerks, representatives of companies selling automobiles, implements, etc., appeared recently before a special session of the Public Service Commission at Toronto.

The Canadian Manufacturers Association and its Ontario division were also represented and opposed the suggested change.

The commission had previously suggested that all notes be registered in order that when a Sheriff was instructed to seize certain goods he could ascertain before going to make the seizure whether or not there was a lien against them. It was also suggested that some legal process should be provided whereby a merchant who had ordered goods seized could have his claim satisfied by disposal of the debtor's equity in the goods under lien, despite the fact that the lien was undischarged. Such procedure, the commission had pointed out, would have to be subject to the full satisfaction of the claim of the seller of the goods covered by the lien.

The Toronto Automobile Trades Association, Limited, asked that a change be made in the act so that no lien notes were registered. In supporting their plea the Association advanced the following reasons:

(1) Registration was an impediment to doing business.

(2) The automobile was not a luxury, but to many a necessary implement for the transacting of business and the earning of a livelihood. In

many cases, it was stated, customers refused to purchase a car on a lien note when they found the lien had to be registered. They refused to have their affairs thus made public. In these cases the dealer had either to lose the sale or risk carrying the transaction without the protection of lien registration.

(3) The mobility of the automobile rendered the registration useless for the protection of an innocent second purchaser. A man could drive his auto miles away and there sell it as his own property. The incessant trading backward and forward of second-hand automobiles was cited in connection with this as showing the futility of trying to keep track of the title to a car by means of registration of lien notes.

Act Now Ignored

(4) The act as it now stood was practically ignored by the trade. If a second-hand car was to be taken in trade the dealer called up the firm whose nameplate appeared on it and asked for information as to ownership. The association knew of no dealer in the habit of searching lien registrations in the County Court Clerk's offices.

The association assured the commission that the automobile trade was as a unit behind the suggestions made in the submission, and offered to secure the endorsement of all sections of the business.

No pronouncement was made by the commission at the end of the discussion as to what its attitude on the question would be when its report was forthcoming.

SUBSTANTIAL REDUCTION IN McLAUGHLIN CARS

THE McLaughlin Motor Car Co. has made a substantial reduction on all models. The reduction ranges from \$100 to \$480. The prices which are F.O.B. Oshawa are as follows:

	Current Price.	New Price.	Reduction.
Master Four 34 Special Two passenger roadster	\$1450	\$1340	\$110
Master Four 35 Special five passenger touring	1475	1375	100
Master Four 36 three passenger coupe	2215	1895	320
Master Four 37 five passenger sedan	2475	1995	480
Master Six 44 Special three passenger roadster	2215	1965	250
Master Six 45 Special five passenger touring	2245	1995	250
Master Six 49 Special seven passenger touring	2595	2345	250
Master Six 46 three passenger coupe	2995	2695	300
Master Six 47 five passenger sedan	3445	3095	350
Master Six 48 four passenger coupe	3345	2945	400
Master Six 50 seven passenger sedan	3795	3445	350

NASH REDUCES ALL LINES

NASH MOTOR Company announce reductions on its complete line including the new 691 Series, effective January 7. The new Nash models are said to be the finest automobiles ever built by C. W. Nash. The outstanding features consist of attractive air-line bodies, new Nash easy-riding springs, and Delco electrical equipment. The new prices are below the pre-war period. Prices published in Toronto are as follows:

Model 691—5-Passenger Touring	\$2,145
Model 696—Roadster	2,100
Model 692—7-Passenger Touring	2,365
Model 697—Sport	2,375
Model 695—Coupe	3,245
Model 694—Sedan	3,645

HEAD OF CHEVROLET MOTOR CO. DIES

CHARLES M. Begole, president of the Chevrolet Motor Car Co., and one of the founders of the Buick Motor Co., died at St. Petersburg, Fla., on December 22. Mr. Begole was in his seventy-eighth year.

propaganda of education in the new rule has been carried out by provincial municipal and traffic organizations.

The threatened street car strike is ordered to begin at the same hour—6 a.m. Sunday—as the rule of traffic changes. If the strike goes into effect it will either simplify the change or make confusion worse, confounded by flooding the streets with a congestion of automobiles.

Vancouver is said to be the largest city to make such a change in traffic rules. The coast cities are also said to be the last in North America to abandon the left-hand turn, except some Canadian towns on the Atlantic coast, which still observe the rule.

EARL B. STONE, ADV. MGR.

AN ANNOUNCEMENT has been made of the appointment of Earl B. Stone as advertising manager of The Cleveland Tractor Co., effective December 15, 1921. Mr. Stone will take up



EARL B. STONE.

the work of G. B. Sharpe, who has resigned.

After two and one-half years with the Cleveland Company, serving as sales representative, assistant advertising manager and district salesman, Mr. Stone is very well qualified to assume his new duties.

His former advertising experience included work with The General Fireproofing Co., of Youngstown, Ohio, and with The National Acme Co., of Cleveland.

MONTREAL MOTOR SHOW

APPLICATIONS for space in the big 1922 National Motor Show of Eastern Canada to be held in Montreal from Saturday, February 25th to March 4th are pouring in so thick that the management has been forced to look for larger quarters and have now contracted for the huge Motordrome Bldg., at the corner of St. Denis and Sherbrooke Sts. where the show has been held for the past two years. A total floor space of 75,000 square feet will now be available for show purposes and the Montreal motoring fans are promised a bigger, better and brighter display of new models. This exhibition is being held under novel conditions. The price of space is fixed at a minimum on all applications received up to January 1st, after which the price will be doubled. All exhibitors both local and out of town are being treated alike and every exhibitor will receive his share of the profits pro rata. This condition assures both dealers and manufacturers exhibiting their cars to the public at lowest possible cost. The motordrome building is too well known to need describing and the management have arranged to take out the entire front of the building for the purpose of making an elaborate and comfortable hall for entrance purposes. Ample emergency exits are also being arranged for. The organization and management are being handled by T. C. Kirby.

I. H. C. SETS FLATE RATE TRADE IN VALUES ON USED TRUCKS

Convenient Service and Periodical Inspection to Aid Dealers in 1922
Sales Campaign

PLANS to take care of the used trucks coming into its dealers' hands have been perfected by the International Harvester Co. and will be in force during 1922. All trucks of a certain issue, regardless of condition, will be given a flat rate trade-in value. In other words, every 1919 International Harvester truck of a certain model will have the same trade-in value. In standardizing the value of these used trucks, the owner, the dealer and the company are protected to a great extent by the periodical inspection of all International vehicles by road engineers and what amounts to almost enforced servicing of these trucks when they are found by the inspectors to need repair or adjustment. The owner of the truck is not obligated in any way to service his truck upon recommendation of the company's engineer, but he is advised and argument advanced as to why the work should be done. This plan of service and inspection will, it is claimed, keep International trucks near the standard value that will be placed upon them.

After the truck reaches the dealers' hands in exchange on a new one, this vehicle will be sent to the district service station where it will be rebuilt in every needed detail, repainted and again placed on the market. This reconditioned truck will not necessarily be returned to the dealer from whom it was received, but will be listed to every dealer in the district and twenty chances for its sale taken instead of one, should it be returned to but the one dealer.

PAIGE ANNOUNCES

REDUCED PRICES

AN ANNOUNCEMENT of reduced prices on all models has been made by the Paige-Detroit Motor Car Co. The current Paige line is designated as the New Series 6-66 and New Series 6-44, open and enclosed models being built on both chassis. The New Series 6-66 7-passenger touring car has been cut from \$4,200 to \$3,385, a drop of \$815, and the New Series 6-66 7-passenger sedan from \$5,700 to \$4,800. The New Series 6-44 5-passenger touring car, which has been selling at \$2,550, is now priced at \$2,260, and the New Series 6-44 5-passenger sedan is cut from \$3,775 to 3,375. There are proportionate reductions on all other models of the 1922 line.

ALEMITE DISTRIBUTORS' CONVENTION

OFFICIALS of The Bassick Manufacturing Co., are busy with final preparations for the convention of distributors of Alemite products. The gathering is scheduled for four days, January 24 to 27, inclusive. The scene is to be the Drake Hotel, one of Chicago's new show spots on Upper Michigan boulevard and the shore of Lake Michigan. At least one hundred guests are expected. The program provided for business meetings, a theater party, banquet and numerous informal affairs for the entertainment of visitors and their companions. The banquet is set for Friday night, and will close the convention. In the business sessions the Bassick representatives will be given first-hand information on a more intensive sales and advertising program that has been worked out to assure increased business for the forthcoming year.

BUICK ON FULL TIME BASIS

BUICK Motor Co. plants which have been closed since December 3, for usual midwinter inventory resumed work in all departments on January 9, on a full time production schedule.

Pistons and Piston Rings

For Popular Cars

Ford Chevrolet Dodge Studebaker
McLaughlin Maxwell Overland and others



Regular and Oversizes carried in stock.

Pistons made from high grade semi-steel. Machined to Manufacturers' limits. Material and Workmanship guaranteed in every detail.

Special Oil Proof Piston Rings and Standard Step-Cut Rings of all sizes.

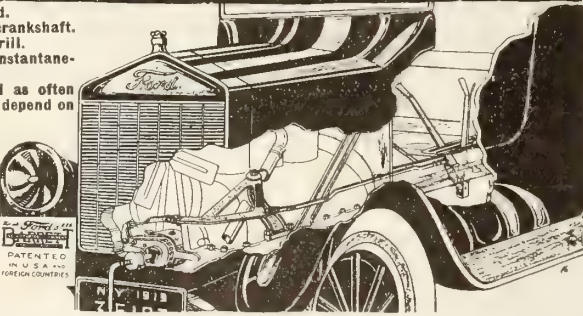
Order from your Jobber or Direct

THE WHITE MACHINE WORKS, LIMITED
WINDSOR, ONTARIO

Simple,
Durable,
Economical,
Reliable,

RELEASES automatically in case of backfire and does no harm to the operator, engine or starter.
No cables, no chains, no pulleys and no springs to wind.
75% increase of leverage on crankshaft.
Easy to install, no holes to drill.
It **STARTS COLD ENGINE** instantaneously even in zero weather.
Ready for starting any time and as often as wanted because it does not depend on the running of the engine for power.
All essential parts made of the very best steel.
ABSOLUTELY NOISELESS. Not a luxury but a necessity.
Endorsed by prominent automobile engineers and mechanical Ford experts as mechanically perfect in every respect and the best that has come under their observation.
The Special Primer which is supplied free with every Starter, vaporizes the gasoline direct into the cylinders, assuring a quick, positive start. The Primer is also operated from the seat. From agents or direct from

BARRETT
SELF STARTER AND PRIMER
GUARANTEED FOR FIVE YEARS For all *Fords* \$40



IMPERIAL AGENCIES, 195 Victoria St., Toronto

GASOLINE MOTORS

\$50.00 and up

4 CYLINDER—4 CYCLE

20 horsepower and up, these motors are taken from high-priced automobiles, and can be used for any purpose where power is required. Hundreds of these motors in use all over Canada are giving satisfaction in motor boats, tractors, cutting boxes, sawing wood, running machinery, etc. We also carry the largest stock in Canada of slightly used parts for motor cars of all kinds.

Satisfaction or refund in full, our motto.

Shaw's Auto Salvage Part Supply
927-31 Dufferin Street
TORONTO

National Tractor and Power Farming Show To Be Biggest Yet

ENTHUSIASM over the plans and prospects for the National Tractor and Power Farming Show, to be held at the Twin Cities February 6th to 11th, 1922, reached a high pitch Wednesday afternoon, December 7th, at a meeting of the Northwest Tractor Trade Association, held at the West Hotel. The meeting was attended by both power farming equipment and accessory men, and organizations were perfected for the carrying on of the preliminary work that must be done locally.

The meeting was presided over by J. E. Gardner, local manager for the J. I. Case Threshing Machine Co., and "pep" talks were made by a number of men active in the power farming industry. George M. Gillette, president of the Minneapolis Steel and Machinery Co., made an eloquent talk, pointing out the numerous benefits that must follow a Power Farming Show, taking the position that the younger generation of farmers must be educated to a system of production on the farm that will compare favorably, so far as efficiency and economy is concerned, with modern methods in manufacturing. In no other way, he said, can the farmer meet his obligations as a producer of food, make money for himself and not be a slave to his occupation.

E. R. Beeman, president of the Beeman Tractor Co., who was the local representative at the national meeting of power farming equipment manufacturers held last week in Chicago, reported the utmost enthusiasm for the show and stated that every development at the meeting pointed to the fact that the coming show would be the biggest and best in the history of the power farming industry.

In scope, the show is the broadest that ever has been held by the manufacturers of power equipment for the farm. Every sort of power appliance will be shown, ranging from the small separator that takes the cream from the milk to the giant separator that takes the wheat from the chaff. Lighting plants, washing machines and other equipment that lighten the labors of the farm wife will have equal place with those machines and tools that take the drudgery out of farming for the farmer and his boy.

The show will be held in the new exhibition building, on the Minnesota State Fair Grounds, that housed the recent National Dairy Show, and it is generally admitted that the building is the finest, for show purposes, that ever has been available for the power farming equipment industry.

The show manager, E. E. Whaley, reported that space was going in a satisfactory manner and that the various plans incident to the show were working out to an undoubtedly successful completion.

Various committees were named for the purpose of completing local arrangements. They are as follows:

Show Committee:—E. S. Tecktonius, Manager, Advance Rumeley Thresher Co., Chairman; J. E. Gardner, Manager, J. I. Case Threshing Machine Co.; H. W. Brown, Manager, The Huber Mfg. Co.; M. Schibbsby, Manager, J. I. Case Plow Works Co.; F. W. Galland, Manager, The Aultman & Taylor Machinery Co.

Finance Committee:—J. E. Gardner, J. I. Case Threshing Machine Co., Chairman; J. H. Snider, Manager, F. B. Harbaugh Co.; H. J. Keegan, Manager, Keegan, Hart, Parr Co.; I. C. Cuvillier, Publisher, Northwestern Tractor & Truck Dealer; H. W. Brown, Manager, The Huber Mfg. Co.; C. D. Velie, Vice-President, Deere & Webber

Co.; L. L. Brockett, Manager, The Cleveland Tractor Co.; L. F. W. Galland, Manager, The Aultman Taylor Machinery Co.; C. C. Wagner, Pres., Wagner-Langemo Co.; J. W. Gray, Pres., Gray Tractor Co.; S. J. Syver-son, Manager, Emerson Brantingham Implement Co.; Archer Crawford and Kenneth O. Klein, representing The Farmer, St. Paul.

Transportation Committee:—B. L. Rowley, Manager, Port Huron Machinery Co., Chairman; J. O. Gertson, Manager, Holt Manufacturing Co.; E. M. Langemo, Secretary and Treasurer, Wagner-Langemo Co.

Publicity Committee:—George L. Gillette, Pres., Twin City Co., Chairman; F. W. Galland, Manager, The Aultman Taylor Machinery Co.; C. T. Stevens, Vice-President, Reinhard Brothers Co.

Entertainment Committee:—E. R. Beeman, President, Beeman Tractor Co., Chairman; C. W. Hadden, Department Manager, Twin City Co.; Kenneth O. Klein, The Farmer, St. Paul; E. M. Langemo, Secretary and Treasurer, Wagner-Langemo Co.; L. L. Brockett, Manager, The Cleveland Tractor Co.; E. K. Jenkins, Manager, Oliver Chilled Plow works.

Space Committee:—E. E. Whaley, Show Manager, Chairman; W. M. Warren, Manager, Samson Tractor Co.; W. W. Roseberry, Assistant Manager, Oliver Chilled Plow Works; C. C. Wagner, President, Wagner-Langemo Co.; J. K. Mortland, Advertising Manager, Farm, Stock and Home.

COLLINS MFG. CO. and NEVER-FAIL PRODUCTS MERGED

THE businesses of the Collins Manufacturing Company of Toronto and the Never-Fail Products, Limited, of Hamilton have been combined. The new organization will be known as the Collins Never-Fail Products, Limited. They will carry on their new and enlarged operations in Hamilton in a modern factory at 1322 Burlington Street, East. The new company will develop to a much greater degree the line of metal poultry supplies and fittings heretofore made by the Collins Manufacturing Company. The line of sprayers and force pumps will be continued as well as other novelties made at present and in prospect. Ample factory space is now available to make the poultry supplies of sheet metal which come in such a variety of patterns and styles that a large space is necessary to manufacture them in quantity.

The Collins Manufacturing Company, Symington Avenue, Toronto, was established in 1891 by the late G. M. Collins and has been carried on by C. W. Collins and G. S. Collins. The operations were somewhat impeded by the war activities of the two partners but since the return of peace the business has grown to such an extent that the Symington Avenue quarters are not large enough for the increased operations. The Collins Metal Hen, an incubator and brooder combined, has been selling remarkably well. Part of this business has been for export. The company is now busy on a large order for English use.

The Never-Fail Products, Limited, have for the last three years made and sold the "Never-Fail" five-gallon oil and gasoline cans originally made by the J. A. Harps Company of Greenfield, Ohio. Never-Fail Products, Ltd., obtained the Canadian rights for their manufacture.

C. W. Collins will be President and General Manager of the new amalgamation.

Effect of High Freight Rates on Implement Prices

THE following article describes conditions in which many Canadian farmers find themselves. It is part of an address given at a recent convention of the Affiliated Advertising Clubs by F. R. Todd, Vice-President of Deere & Company, the well-known manufacturers of farm implements at Moline, Illinois and Welland, Ontario. In it Mr. Todd suggests what is necessary to restore the purchasing power of the farm dollar and by doing so bringing about a general revival of business.

Unfortunately, no plan of merchandising is adequate to maintain a satisfactory volume of business under the present abnormal business conditions, when, due to the unbalanced relationship of prices, the products of half of our population, the farming class, will purchase only fifty per cent of the normal amount of our factory products, and as the resumption of all normal business activity awaits the re-establishment of better price relations, I do not consider my mission complete unless I refer to the present demoralization of business and to what, in my opinion, is the remedy for existing commercial evils. I am particularly prone to discuss these matters because of the great influence the press can have in accomplishing this remedy. I do not believe that I can better open this subject than by reading a letter which we received a few days since from a farmer at Culbertson, Nebraska:

"John Deere,
Moline, Illinois.
My dear Sir:

I am a farmer, you are a manufacturer of some eighty good farm implements. Before the war I could buy your best farm wagon for \$80 and all the rest of your implements including the best team harness for \$55. Now these prices are almost if not three times as high as the price before the war, at least two and a half times as high. My corn is worth less than before the war, likewise nearly everything the farmer has to sell. You say that you are selling on less profit than before the war, which I do not dispute, but pray tell me how and when these prices are going to be adjusted so we can go ahead and buy the implements that we need. We farmers have a little money left from the high price period but it will soon be gone and then what?

I need a wagon and my dealer wants the price of 650 bushels of corn, the same wagon I could buy with 200 bushels of corn, before the war. The harness man wants the price of a wagon load of hides for a No. 1 harness. I simply cannot see my way clear to buy wagon, harness or anything else that I can possibly manage to get along without. I wish you would have one of your best posted men advise me when we are going to get back to normal conditions again. It looks serious to me."

Here is a farmer, not on a so-called buyers' strike, but endeavoring to the best of his ability to find a remedy for the impossible condition in which he is situated. He has the same number of acres that he had before the war; the sun shines in the same way; the rain falls in the same quantity; the soil is no richer; the production no greater; yet to buy a standard article for use upon his farm requires more than three times the number of units of crop that was necessary before the war. Manifestly, he has not enough bushels to go round.

An analysis of this situation develops the following facts:

The freight rate from Moline, Illinois, where we manufacture our farm wagons, to Culbertson, Nebraska, in

August, 1914, was \$1.37 a hundred. To-day it is \$2.32 a hundred, an increase of 95c, which, upon the twelve hundred pounds that the farm wagon weighs means an added cost for transportation upon the wagon alone, of \$11.40. The best estimate that we could make of the increased cost of transportation upon the materials that enter into the wagon is \$20.00 more.

An investigation indicated that at the present price of corn and of the delivered wagon at Culbertson, Nebraska, the farmer was right in stating that 650 bushels of corn were required to buy the wagon.

In August, 1914, the freight rate on corn from Culbertson, Nebraska, to Chicago was 24½c a hundred, or approximately 14c a bushel; to-day it is 47c a hundred, or approximately 26c per bushel—an increase of 12c a bushel for the transportation of the corn to the Chicago market. This increase, upon 650 bushels of corn, is \$78.00. We therefore have the following figures:

Increase in cost of transportation to factory of materials necessary to make a wagon..	\$20.00
Increase in cost of transportation of the wagon from Moline, Illinois, to Culbertson, Nebraska.....	11.40
Increase in cost of transportation of corn from Culbertson, Nebraska, to Chicago....	78.00
Total	\$109.40

In other words, the increased cost of transportation over pre-war conditions, involved in the purchase of a wagon by the Culbertson, Nebraska, farmer, is \$29.40 more than the wagon cost that farmer delivered at Culbertson, Nebraska, in 1914.

This is a typical picture of the condition in the United States. It is not as bad in Canada, for the reason that freight rates have not advanced as much, but the situation in this country is not materially different from that which exists in the United States. Notwithstanding these facts, and the very high cost of transportation, the railroads are making no money. It is therefore patent that before the farmers of this and my own country can get back an adequate purchasing power to keep our plants running, there must be radical reduction in the cost of railroad operation or else the present business depression will continue indefinitely.

Near Moline, Illinois, is the Silvis Shop of the Rock Island Railroad. While the going rate for common labor in Moline is 30c an hour, at these shops 43c per hour is being paid for eight hours a day and time-and-a-half overtime. Under the so-called national agreements, which have added so much to the burden of railroad operation, if a man works in excess of one hour over-time, even though it is but ten minutes, he gets five hours' additional pay at the time-and-a-half rate. Locomotive engineers are drawing from \$3,500.00 to \$5,000.00 per year and other railroad labor in proportion. It can therefore well be seen that no real readjustment can be accomplished until the labor of railroad transportation is reduced to a par with the labor returns of other fields, particularly those of the Canadian and American firms.

We have in our country now unemployed, approximately five million men. The company which I represent has fourteen factories, all of which are closed down and which, under normal operation, employ ten thousand men. These men cannot be re-employed until the farmer's bushel will buy its accustomed proportion of the products of the factory. The farmer's products have been deflated. As far as he is concerned, the cost of living is back to

(Continued on page 32)



Look After the Farm Trade in Columbia Dry Batteries

Wide-awake dealers everywhere are taking advantage of these established facts:

1. Columbia Dry Batteries are positively the one source of perfected ignition current for stationary gas engines, tractors and all farm power.
2. Columbia Dry Batteries are supreme for bells, buzzers, telephones and portable electric lighting.
3. Columbia quality and our sustained advertising keep Columbia Dry Batteries foremost in the consumer's mind.

Write in today for details on the full Columbia line. It will turn a tide of profits your way.

Made in Canada

CANADIAN NATIONAL CARBON CO., LIMITED
TORONTO AND WINNIPEG

141214

Columbia Dry Batteries

—they last longer



SHOP NOTES FOR THE GARAGE MAN



LEARNING TO WELD

Torch Movement Important. Beginners Should Concentrate on One Kind of Welding Until Proficient. Beveling. Preparation of Thin and Thick Metal Sections for Welding. Beginners' Pointers

BEGINNERS should commence by welding strips of low-carbon steel from 1-16 to $\frac{1}{8}$ inch thick, using a No. 2 tip. Thin gauge metal can be welded without using welding rods or beveling the joint. The strips should be laid on metal supports or preferably firebrick resting on a metal plate. Never attempt to weld on a wooden top workbench without protecting the planks from the torch flame.

The torch should be given a slow zig-zag motion across the joint, holding it slightly inclined sideways so that the flame strikes the metal at an angle in the direction of the joint. The torch movement should extend about $\frac{1}{8}$ inch each side of the joint. The forward movement along the joint will depend on how quickly the metal fuses and welds together. In no case, however, should the flame be directed against the metal without motion, as it will be overheated if the flame is not kept constantly moving.

As the metal fuses the motion should be maintained keeping it in step with the melting metal, going no faster nor slower. The operator will experience difficulty at first in seeing just what is taking place when looking through colored glass spectacles or goggles, but ability to distinguish between the melted and unmelted metal will come after some practice.

It will be realized that correct torch manipulation requires considerable muscular training and the operator will find the practice tiring at first. The weariness comes more from mental exertion than muscular effort, however, and after a few days the operation will no longer be irksome.

Beginners should concentrate on one kind of welding until they are able to produce fairly satisfactory work. Avoid experimenting with various kinds and thicknesses of metal until satisfactory proficiency has been obtained with one gauge and kind of metal only. Study to learn principles in the beginning and endeavor to do one thing well at a time.

Holding the Torch

The torch should be grasped by the handle in the right hand, at or near the point where it balances with the hose hanging free. It should be held across the joint and worked back and forth in this direction when welding. Always hold the torch with the tip down and avoid flourishing it around. The flame is very hot and will instantly set fire to clothing or other combustible with which it comes in contact. Severe burns will follow exposure of the flesh, if but for an instant, to the direct flame.

The point of the white-hot bulb or cone should be held touching the metal or from 1-16 to $\frac{1}{8}$ inch above, dependent upon the size of tip in use and the metal being welded. Care

should be taken to hold the torch uniformly at the prescribed height. Touching the top to the metal will obstruct the flow of gas, and it may cause a flashback in the older types of torches and tips, that will continue to burn within the tip head and soon ruin it if not checked. In case of a flashback turn off the oxygen needle valve immediately, relight and adjust as before.

The operator should learn to stand easily and hold the torch in the hand so as to control its position and motion without tightly gripping the handle.

should lie clean and clear, having no foam on the surface, and "wetting" the sides of the groove in which the weld is being made. Anyone who has soldered a joint knows the difference between the molten solder that amalgamates or unites with the parts to be soldered, and that which persists in a spheroidal state, refusing to unite with the metal and standing on the surface with rounded edges. So long as the spheroidal or rounded edges persist in the puddle the welder should know that he is not making a sound weld. He is not securing penetration and union of the adding material and parent metal.

The remedy with steel is usually more heat to melt the oxide but when welding cast iron the oxide in the puddle which interferes with penetration cannot be eliminated except by the use of a flux that reduces it.

The welder's training should enable him to tell immediately when the pud-

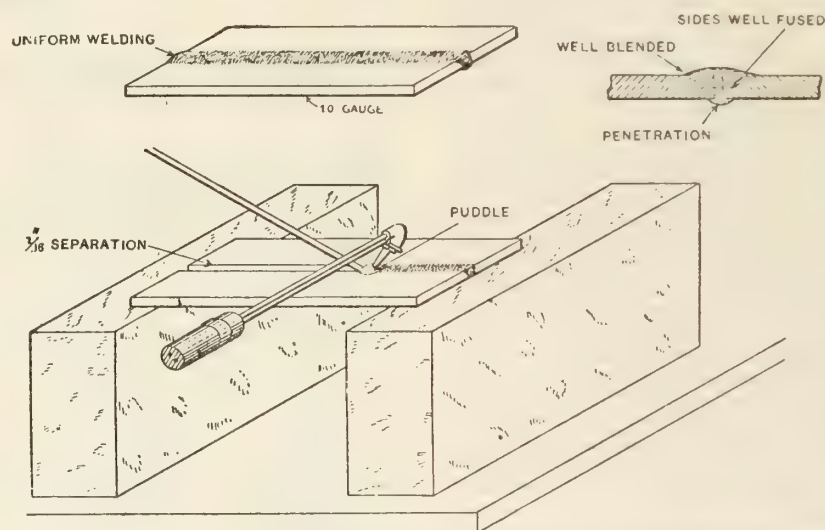
and sifted powdered glass. Care should be taken to clean out the cavity and the gas holes thoroughly afterwards to prevent clogging the tip.

Flashbacks

The following regarding flashbacks applies to the older torches made before all the principal causes of flashbacks had been found and eliminated. Non-flashback tips are now furnished for all style C torches, which are free of this trouble when used under reasonable conditions of service.

Flashbacks in the older torches are troublesome to the beginner and are likely to be more or less frequent with any operator depending on the skill or lack of skill with which it is used. Any torch will develop a flashback if held with the tip so close to the metal that the flow of gas is obstructed, or if an obstruction is slapped against the end of the tip. Flashbacks also result from overheating. The beginner should learn first of all to avoid holding the tip too close to the work and to prevent the tip or head becoming hot. No trouble is experienced from overheating when welding thin gauge metals, but on heavy welding of preheated parts it may become serious and require frequent cooling by plunging the tip and torch head into cold water. Water-cooled head torches are used on heavy preheated parts, or the special No. 37010 non-flashback torch with long curved tips.

(Continued on page 32.)



Welding Prepared Joint showing Welding Rod, Firebrick and Cross Section of Weld.

When welding, the flame should not be held steadily in one place but should be kept in constant motion, the movement depending on the character of the joint and the thickness of metal as before stated.

One of the first things for an operator to learn is to have confidence and not be afraid of the apparatus. If the torch backfires, seek out the cause of the trouble and correct it. It is rarely that a flashback extends further than the head of the tip, and if the oxygen is immediately shut off no damage should result.

Go through the motions of turning on the gases, adjusting the working pressure, lighting the torch and regulating the flame until the order becomes fixed in mind and automatic.

The Puddle

Beneath the torch flame is a pool of molten metal known as the "puddle." The size, heat and condition of the puddle are what determine the success or failure of welding. Learning to weld is largely a matter of seeing the puddle clearly through colored glasses, understanding what is going on and being able to correct the defects seen.

When welding steel the puddle

conditions are right, whether too much or insufficient heat is being radiated to it by the flame, when it is properly located and if the condition of the metal is such as to need clarifying by the use of a flux.

Leaks in the Torch Head

The seat of a D-B torch head is reamed to a standard angle, and the tips are carefully turned to fit. No trouble need be apprehended from leaks when the torches are new, but after a period of use the torch if misused may become distorted in the head to such extent that the tip seat no longer fits closely, the result being that the gas leaks and catches fire, burning around the tip nut. The welder should immediately correct this trouble if possible. While it is not necessarily a source of danger, it represents waste and interferes with good work. Removal of the tip may disclose the leak to be due to the presence of a foreign substance which when removed obviates trouble. If the cause is due to distortion it may be necessary to return the torch to the factory for refitting. Minor troubles of this sort may sometimes be overcome by grinding in the tip with oil

FLUSHING WITH KEROSENE OF DOUBTFUL VALUE

THE practice of flushing the working parts of an internal combustion engine with kerosene after draining it of old crank case oil has become so common as to be almost universal, but recently several authorities have come forward expressing their doubt as to the value of the practice.

The objections which have been brought forward to it are as follows:

First, a certain amount of kerosene is likely to become entrapped in natural pockets and troughs which are formed through details of the engine design, and when new oil is put in it will be diluted by the kerosene caught in these pockets.

Second, many engines which have circulating pumps above the crank case for the lubricating system require that the pumps be primed with lubricating oil to insure immediate circulation of the oil on starting. When kerosene is employed, it is not effective as a priming and it is difficult to start circulation.

Third, many operators will turn the engine for a few minutes with a starter in order to make the flushing thorough. The effect of this on the engine is very bad indeed.

Fourth, it is claimed by some that the gritty abrasive particles which collect in the crank case are more readily disturbed and circulated when kerosene is used for flushing than otherwise. Naturally, the results of this cannot be good.

The frequent change of crank case oil is undoubtedly a strong factor in improving the performance of an engine and in adding to its life but care should be used as to the method employed in making the change.

DECHANT MAKES A CHANGE

AFTER twenty-one years of experience covering practically every phase of implement sales, service, and advertising, Geo. A. Dechant resigned as advertising manager of the J. I. Case Threshing Machine Company, effective Dec. 1, 1921, and has joined the staff of the Western Advertising Agency, Racine, Wis.



GEO. A. DECHANT

Starting as a youth in the repair and extra department of the Case company, and passing rapidly through the threshing machine and steam engine erection and testing departments, Mr. Dechant became a full-fledged salesman at the Oshkosh, Wis., branch house in the fall of 1903. After three years of sales work he was given charge of the Case branch house at Harrisburg, Pa., with supervision over 15 salesmen and 125 dealers in Central Eastern States, and with full responsibility for sales, sales promotion, collections, and for the performance of machines delivered to his customers. In 1916, the resignation of the then advertising manager for the Company created a vacancy at Racine which Mr. Dechant, because of his intimate knowledge of the machines in the Case line, and his demonstrated ability to sell in competition, was called upon to fill. Under his efficient management, Case advertising for the last five years has been maintained at a notable standard.

MOTOR VEHICLE PRO-

DUCTION IN U. S.

APPROXIMATELY, 1,680,000 passenger automobiles and trucks, with a wholesale value of \$1,222,350,000, were produced in the United States in 1921. This output represents a 24 per cent decrease in units from the previous year's turnout of 2,210,000 vehicles, but, owing to substantial price reduction, the wholesale value declined 45 per cent, from \$2,232,928,000 in 1920. Of the 1921 output, 1,535,000 were passenger cars, and 145,000 were trucks. In 1920, 1,885,000 cars and 325,000 trucks were produced, which indicates that the truck output last year was more drastically curtailed than passenger car production. Total motor vehicle registration approximate 10,000,000, of which 9,000,000 are passenger cars and 1,000,000 trucks. Farmers are estimated to own 3,000,000 of these vehicles, of which 2,850,000 are passenger cars and 150,000 trucks. Approximately, 134,400,000 tons of farm products were hauled by motor transport last year.

ALEMITE WILL OPEN A CAN-
ADIAN FACTORY

BELLEVILLE, Ont.—The Alemite Products Co., Ltd., will shortly begin the manufacture of Alemite products for the Canadian trade. The Alemite Products Company, Ltd., is a subsidiary of the Bassick Manufacturing Company, which pioneered the Alemite system of lubrication. Decision to establish the Canadian subsidiary was forced by the strong demand in the Dominion for Alemite and other Bassick products.

The Belleville organization will start the manufacture of the Alemite lubrication system, the Gas-Co-Lator and perhaps one or two other products at once. Within a short time every item of the Bassick line will be manufactured in Canada for the Canadian trade.

Hank Smith Finds a Way
to Sell Used Cars

(Continued from page 22,

again were studying them with that prospective purchaser look in the eye.

"You keep this used car section of your garage in mighty fine shape," remarked someone.

"And why shouldn't I," shot back Hank. "These cars are just as good as new, therefore deserve the best of treatment."

This thought sank home, and it wasn't long before Si Slattery, who had admitted he was almost persuaded to buy said, "What's the price of this one Hank?" After hearing the price he said, "Guess I'll take it at that."

"You will not," replied Hank to the astonishment of all concerned, "you'll settle nothing till you've tried out the car."

This turning down of sure business seemed foolish on the surface, but the wisdom of the move was soon apparent. It was, so to speak, the last straw that broke the camel's back, for what little doubt had remained in the minds of those present was swept away by his action, and soon afterwards Hank provided test runs to quite a number.

Satisfied that he had gone far enough, Hank guided them all back to their seats, and instead of sending them home immediately, as many would have done, he started telling them of many things to watch out for, and many pleasures they would enjoy after they owned a car. He talked on the saving that could be effected through the care of tires, and how an overhauling now and then saved many an expensive repair bill. Sly old Hank. He let it be understood that the cars were as good as sold, and he wasn't far wrong, for Bill Winters, who told me this story, says that Hank sold out all his cars in a little more than a week, and is buying in more as he knows of other good prospects. As Bill says, Hank is a wonder, for not only will he land further used car business, but later on will sell these men new cars and supplies. Confidence is a great thing at any time, and it's one grand asset in the automobile garage business. Not only does the dealer need it, but he must instil it into his customers. Let them feel you're behind the sales with your guarantee and the rest is easy.

BIG GARAGE FOR TORONTO

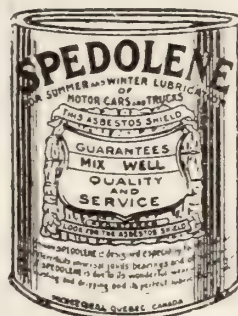
The Gotfredson Joyce Corp., Ltd., manufacturers of G. and J. motor tracks, are erecting a large building offices, showroom, garage, and service station at 242 Spadina Ave

You may have to

"Ask 'Em to Buy"

if they have not already used "Spedolene."

But once they do, they are constant users



"Spedolene" a lubricant

embodying many features and distinctive qualities.

Asbestos

is one of the ingredients, this makes it the most effective heat resisting lubricant known.

The best materials obtainable are used, this ensures satisfaction to the motorist.

Asking motorists to buy a compound that will satisfy them and cause them to place confidence in you and your business is a sure method of building up a paying clientele.

"Once Spedolene—Always Spedolene"

**Spedolene Refining &
Manufacturing Co., Ltd.**
Montreal

Straightening Axles and Chassis Frames

In addition to a specialized service on made-to-order auto and truck springs and the repairing of any spring made, we give an equally effective service straightening axles and chassis frames. Turn your difficult and "impossible" jobs over to us—we'll see you through at a profit to yourself and customer. Write for full information.

COZENS SPRING CO., 4-6 Wood St., TORONTO

FORMERLY COZENS & MAYNARD

"The Spring People"



THE TIRE MILEAGE GUARANTEE ABOLISHED

Manufacturers Make New Warranty. Option to Pass on Defective Products Will Remain With Maker.

THE tire manufacturers' division of the Rubber Association of America after an exhaustive consideration of the subject adopted recently the recommendations of a special committee providing for elimination of mileage guarantees and the adjustment abuses which have resulted. As a substitute, manufacturers have adopted the following standard warranty:

"We do not guarantee pneumatic automobile tires for any specific mileage, but every pneumatic automobile tire bearing our name and serial number is warranted by us to be free from defects in workmanship or material.

Replacement Optional

"Tires claimed to be defective will be received only when all transportation charges are prepared, and when accompanied by this company's claim form duly filled out and signed by owner. If, upon examination, it is our judgment that the direct cause of the failure of the tire to render satisfactory service is attributable to faulty material or workmanship, we will, at our option, either repair the tire or replace it for a charge which will compensate for the service rendered by the returned tire, based upon its general appearance and condition.

"Pneumatic automobile tires in which a substitute for air has been used, tires used when not inflated to the pressure recommended by us, used on wheels out of alignment, abused or misused, used on rims other than those bearing these stamps (), (), (), or which have been injured through accident or design, are not subject to claim hereunder.

"This company does not authorize any dealer or agent to make any other or additional Guarantee or Warranty."

This new warranty would be printed on price lists, tags and stickers accompanying tires, much in the same manner as the former guarantee was used. In announcing the change in policy, the following statement was issued by the Rubber Association of America.

"A movement is well on the way to adoption throughout the tire industry to eliminate the chief evils which have for years caused loss to consumers, dealers and manufacturers through improper claims for adjustment, and

manufacturers and dealers are working in harmony to produce the desired result.

"Motorists who take good care of their tires are the strongest contributing factor to future economy in tire costs. Adjustments based on claims other than because of manufacturing defects strike at the efforts of the industry to secure tire economy. Dealers have been placed in the embarrassing position of losing the good will of tire users and manufacturers have borne the brunt of the loss due to claims which have arisen out of public misconception of the responsibility of tire manufacturers.

Plan Effective Immediately

"All of the abuses have tended to increase costs, and the whole purpose of the present movement is to eliminate the waste due to these causes.

"Under the plan there is a revision of the old guarantee in the form of a new manufacturer's standard warranty, aimed to clear up misunderstandings the public may have had regarding the manufacturer's responsibility. A standard claim form is also being placed in the hands of dealers.

"The manufacturers are taking steps to put the plan into effect immediately. The new manufacturer's standard warranty and the standard claim form have already been welcomed by the National Tire Dealers Association as a constructive measure. Through the plan all claims covering alleged defects will be presented in a uniform manner for consideration by the tire manufacturer.

"The form should result in the elimination of 'policy' adjustments, which have been the bugbear of the tire industry since its inception and have caused losses running into large sums annually. Hereafter manufacturers will consider alleged defective tires only on the basis of general appearance and the condition in which they are returned by the customer.

"No claims will be considered unless the standard claim form is executed by the tire owner. The claim form does not enter into the transaction between the dealer and the consumer at the time of sale, and is only to be used when the tire owner may have occasion to present a claim based on defective workmanship or material."

Special Events at Montreal Motor Show

Plans for Mammoth Exhibition in the Motordrome

THE 1922 Montreal Motor Show will be held in the huge and spacious Motordrome from Saturday, February 25th to Saturday, March 4th, inclusive. The Motordrome is the building in which both the 1920 and 1921 shows were held. The 1922 show will prove to have a larger number of new makes before the Eastern Canada public than ever before. The Motordrome presents the largest floor show area in the country. With the two galleries opening directly from the main floor and which will be utilized by the Show, a total of 75,000 square feet will be afforded for display purposes. The largest of the three floors will be confined to passenger cars and around the four sides of the two galleries the accessory departments will be located. Steps have already been taken to insure a decorative spectacle that will excel even the achievements of former years. Decorators from many different cities have been invited to submit plans and designs and the management promises some novelties that are distinctly worth while. A military orchestra will be engaged so that concerts will be given every afternoon and evening to lend interest to the show.

Manufacturers of the following

cars and trucks have already made arrangements for space: Cars—Austin, Cole 8, Columbia Six, Chandler, Chevrolet, Durant, Duesenberg, Earl, Gray Dort, Haynes, Jordan, Lavoie, Maxwell, Mitchell Six, Oldsmobile, Peerless, Parker, Rolls-Royce, Stephens Six, Studebaker, Stutz, Vauxhall, Velie; trucks—Beaver, Garford, Leyland, Mack, National and Ruggles.

DISCUSS TRUCK LEGISLATION

A MEETING of truck dealers and owners was held at the offices of the Automobile Club of Canada, Montreal, recently, at which representatives from the Ford, Pierce Arrow, Packard, White, International Harvester Co., Maple Leaf Mfg. Co., Gotfredson and Joyce, National Breweries and City Auto Delivery were present. J. A. Duchastel acted as chairman. The question of speed and weights and general legislation for motor trucks operating in the province of Quebec was discussed at length. A committee comprising Messrs. L. W. Pearson, H. D. Jones, L. M. Hart and George A. McNamee was appointed to meet and report to a general meeting of owners and dealers.

STEWART TRUCKS REDUCED

THE STEWART Motor Corporation, maker of the Stewart motor truck announces this morning a drastic cut in prices.

The total reductions of price from the September, 1920, prices are: \$1,355 on the 3½ ton truck; \$1,205 on the 2½ ton truck; \$1,500 on the 2-ton truck; \$875 on the 1½ ton truck; \$670 on the 1-ton truck; and \$350 on the speed truck, which is now priced at \$1,775 for the chassis.

T. R. Lippard, president of the Stewart Motor Corporation, states that the cut in prices has been made possible through decreased cost and increased production of labor, important decreases in overhead at their plants, better raw material and at greatly reduced prices with notable plant economies.

Learning to Weld

(Continued from page 22)

Flashbacks may be caused by insufficient acetylene pressure or the presence of an obstruction in the tip. Particles of metal sometimes fly up and stick to the tip partially shutting off the opening. Hence the operator should remove the obstruction either outside or inside the tip and see that the gas pressures are correct for the size of tip used.

Care should be taken to prevent the hose becoming kinked or pinched as this will reduce the flow of gas and may cause a flashback or improper flame adjustment.

Preparing for Welding

Acceptable commercial welding is produced by proper and thorough preparation of the parts before actually undertaking to weld. By preparation is meant cleaning, beveling the edges to be welded, lining up, preheating in the case of castings to produce expansion and to counteract the effects of contraction, providing sufficient supply of gases and welding rods and starting work at such time that it can be finished in one heat. Work should not stop on the weld until finished. Hence, making ready for welding means planning to finish it without interruption.

Cleaning Parts to be Welded

Remove all rust and scale from the edges to be welded. The time spent in cleaning a joint and removing all foreign matter will be well employed. Never undertake to weld parts covered with grease without cleaning them if for nothing more than comfort of operation. Remember that a weld should be kept free of everything except the weld metal and flux. Anything else interferes with good work.

Heavy grease and thick oil may be removed by the use of scrapers and waste soaked in kerosene. The addition of 5 or 10 per cent. machine oil to kerosene makes it more effective as a cleansing agent than the clear kerosene. A wire scratch brush is good for removing scale and rust as also are old files ground to a chisel edge. Care should be taken to have large parts thoroughly dry and free of oil before starting to preheat. The heat might gasify the grease and cause a puff or an explosion in a confined space of sufficient force to knock down a loosely laid brick furnace around the parts and thus cause considerable loss of time and annoyance.

Beveling

Following usual practices, wrought iron, steel, cast iron and other metals in general, thicker than ¼ inch are beveled on the edges to an angle of about 45 degrees, preparatory to welding. Thus, an included angle of about 90 degrees is formed when two beveled edges are butted. If the parts of an iron casting are thicker than, say, two inches and it is possible to weld on both sides the bevel may be cut to the middle only. Less labor will be required to make the bevels and less welding rods and gas will be needed for the weld.

A wide variation in practice is allowable in beveling steel plates. While

it is generally agreed that the edges should be beveled it may not always be absolutely necessary, however. Two square edge plates may be successfully welded by tacking them a distance apart approximately equal to the thickness of the plate. The welder must then break down the corners thus forming a groove in which the adding material is puddled and welded in the same manner as though the joint had been mechanically prepared. Of course it is better to bevel mechanically than by torch manipulation. Recommended practice for tanks and drums is beveling the edges of the plate to an angle of about 45 degrees before rolling into cylindrical form. The edges for the longitudinal and girth seams are then presented in the form which requires the least torch manipulation to produce dependable welds. It is not necessary that the bevels be carried clear across the edges so as to make a sharp angle, but a thickness of 3-32 to ¼ inch may be left square at the bottom. Less metal will be removed and there will be less danger of overheating the metal at the bottom.

Thin metal especially sheet aluminum should be prepared for welding by turning the edges up to a 90-degree angle. The weld is made by fusing the turned-up edges which unite and sink down approximately flush with the plate.

Cutting Bevels

Bevels may be cut rapidly in steel and wrought iron with the cutting torch and at low cost as compared with hand chipping, grinding, sawing or filing. In manufacturing plants it is feasible to cut bevels of plates with a planing machine and to turn the ends of flanged pressure container heads in a lathe to the required angle. Cutting-off machines may be used to cut pipes and bevel at the same time. Cast iron may be beveled with hammer and chisel, emery wheel, hacksaw or file, also with cutting torch fitted with a tip for cast iron cutting.

(To be Continued)

Effect of Freight Rates

(Continued from page 29)

a pre-war level. When the transportation cost of moving these products to market and the cost of handling the products after they get there are reduced in the same proportion that they have been deflated on the farm, we shall again have established the proper relation between the prices of the products of the farm and those of the factory, but until this is done we cannot expect a resumption of prosperity.

The length of time required in this readjustment is going to be largely determined by the education of the public to the necessities of the case. When the public realizes that deflation in such important fields as those of railroad transportation, coal mining and the building trades, particularly, is absolutely essential to the employment of these millions of men, then the public will demand that this deflation occur. It is the business of you newspaper men to so widely distribute the facts that this public knowledge will be acquired in the very near future. If this is not accomplished, then the hardship, the failure, the bankruptcies, that we are going to face, are indeed appalling.

I have an abiding faith in the ability of the peoples of your country and of our own readjusting these matters. We have just been through a worldwide war that has caused endless destruction of life and property and it takes us some time to emerge from its aftermath. Conditions are going to improve from day to day as our real troubles are better understood, and with the work of public enlightenment now being done and yet to be accomplished, particularly through the members of our press, I face the future with optimism, believing that the remedy is close at hand.

Thomas Findley, President Massey-Harris Co., Passes

THOMAS FINDLEY, president and general manager of the Massey-Harris Co., died at his home in Toronto on December 19, 1921, at the age of 51 years. His death was not unexpected as he has suffered for the past five years from a malignant type of ear infection. His affliction was not of sufficient severity to cause his retirement from active business until toward the close.

Mr. Findley, like many other outstanding men in the industrial life of Canada, was born on a farm. His birthplace was a farm in York County, Ontario, and when at sixteen he made his first venture in a business career the only educational institution he had ever attended was the little public school at Sutton West. Without the advantage of family connection or outside influence, and denied the advantages of an academic training, he rose by a series of rapid progressions to the highest post of honor and responsibility in one of the greatest industrial enterprises in the British Empire.

He first linked up with the Massey-Harris Co. in 1890 as a telegraph operator, and during the period which has since elapsed, he has successively filled the positions of chief accountant, assistant to the president, assistant general manager, director, vice-president, and president and general manager, which latter post he held at his death.

Mr. Findley's knowledge of the fundamentals of business was wide and deep, not only in respect to that appertaining to his own company, but of business conditions in general, both at home and abroad.

In manner Mr. Findley was quiet and unassuming. He will be remembered by the company's employees, not so much as their chief executive, however, but as the man who introduced "humanizing" relations between the company and the workers, who tried and succeeded in making life a little more pleasant for the thousands of workmen and their dependents who looked to the company for employment and sustenance.

Mr. Findley's success was due to a coupling of his innate ability with a devotion to duty, and a thorough course of self-improvement, which he followed from his earliest years. He was constantly preparing for that opportunity that comes in every man's life-time.

AN APPRECIATION

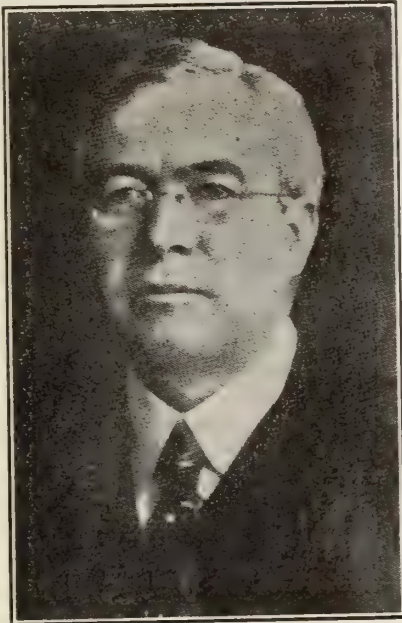
Jos. J. Shenstone, vice-president of the Massey-Harris Co., who had been associated with Mr. Findley for many years and who had many opportunities to study the fine qualities of the late president paid the following deep tribute to Mr. Findley:

"I have known Mr. Findley for a little over thirty years, and have been intimately acquainted with all the circumstances and conditions in connection with his advancement from junior clerk to president of the company.

"During that period I have had ample opportunity of learning of his splendid abilities as a business man, his sterling character, and also those social qualities that made him ever a delightful companion and associate. Mr. Findley had most of the qualifications that are the requisites of a successful business man.

Had Splendid Memory

"He had a good memory, and therefore did not have to rely on written or printed records. That a certain remote discussion ended in such and such a way, or that certain happenings led to such a result, was often confirmed by reference to the books, though these matters had often passed out of the ken of most of the participants. He was very quick to perceive the pith of



THE LATE THOMAS FINDLEY

an argument, and very sure in the exercise of his judgment. Having made up his mind as to the right thing to do, he set about its accomplishment with perfect assurance and great earnestness. That a matter might be difficult or disagreeable was only an additional incentive for prompt and intelligent action.

"He was very practical: I mean in connection with our own particular business. Although he did not pretend to be an expert on the fieldwork of the implements we manufactured, his judgment as to the special requirements of any machine, or as to suggested alterations or refinements, was almost universally sound and correct. In this phase of his make-up he had the advantage of being closely associated for many years with the late Sir Lyman Melvin-Jones, who was one of the sanest and most practical implement men that Canada ever produced. The two men were remarkably alike in many respects. Of somewhat the same physique, they thought alike and worked alike. They both commenced life on the farm, and were very largely self-educated and well educated. Of the two Mr. Findley was probably the most liberal in the views, but he lived his early manhood twenty-five years later than Sir Lyman, and the world had made some great strides in the meantime.

Most Optimistic Man

"Mr. Findley was a most optimistic man; he could always see the bright side of every cloud. This is a

particularly requisite qualification in the implement business, where there are so many trying situations, and where the success of the business depends very largely upon the preparations made for the future. By his close reasoning he could visualize the end from the beginning, and his optimism left no room for worry; thus he could apply a rational mind to the consideration and discussion of every matter that claimed his attention.

"He was a courageous man, never daunted by difficulties, or diverted from his purposes because the way seemed beset with trouble. This characteristic was very apparent to all his friends and associates during the last years of his life. For five years or more he lived under the menacing shadow of an insidious deadly ailment—five years of alternate hope and despair, and almost constant pain—but he faced all his duties, and carried on his accustomed activities to the very extent of his physical strength, with a calm bravery that incited the admiration and the sympathy of every one with whom he came into contact.

Master of Detail

"Then he was a master of details. This is one of the first characteristics that showed to the officers of the company that he was destined to take a leading part in the management of its affairs. Even when he became the general manager, his knowledge of all the details of the business gave him a sure and intelligent grip on all the various activities of a large concern. He was equally conversant with all the intricacies of business, the materials, manufacturing the product, and selling the goods.

"Probably one of the characteristics that led most largely to his success was his thoroughness. He did not slight even the apparently trivial matters that came before him, and he demanded this same quality in everybody around him.

"He was always greatly interested in the younger men in the business, and was always ready with counsel and advice. Many an otherwise mediocre junior has been encouraged and helped to better work by his example and precept. He entered very sympathetically into the problems of the factory employees, and was always willing to discuss them and, if found to be inconsistent with existing conditions, he was ready to lighten them. At the same time he was uncompromisingly opposed to strikes or any such action on the part of the workingmen.

Esteemed, Honored, Beloved

"Having all these qualities of mind and heart made him esteemed and honored and beloved by all who came into contact with him, and especially those with whom he was intimately associated.

"His success in life was not accidental—every round in the ladder was won by sheer worth and honest and intelligent endeavor.

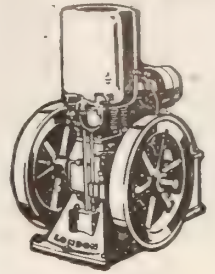
"Then to all the rest should be added his straightforward consistent Christian life—which he practised in every walk in life and which sweetened and enriched his every contact with his fellows.

"He was a great and good man, and the world has been sweeter and brighter because Thomas Findley lived in it for fifty years."

WOULD TAX MOTORISTS FOR THEIR POLICE PROTECTION

Montreal, Dec. 14.—Declaring that "it is quite evident that an organized gang of automobile thieves is operating in Montreal," L. Gravel, speaking at the Chambre de Commerce meeting here this afternoon, urged the desirability of imposing a special two-dollar tax on the sixty thousand odd automobiles in this province with a view to providing for an increased police force specially available for auto thefts.

The meeting concurred in the views of Mr. Gravel.



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THE LONDON ENGINE

is the only vertical engine for farm use. All automobile engines are of this type. Has a completely enclosed crank case which keeps dust and dirt away from piston and cylinder.

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Profitable Addition to Dealer Stocks

Every stock item has two possible values. Profit in itself and profit in other lines that it sells. When an item such as Alligator Steel Belt Lacing has strength in both features, it becomes mighty valuable in stock—especially now when dealers are planning on increasing their range of sales.

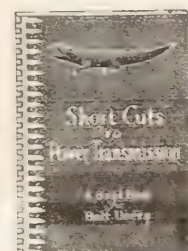
Every power farmer—and that means the progressive farmer whose trade is valuable—will be better off for using Alligator lacing. Thousands are already using it. Hundreds of thousands are reading about it in our National Advertising in farm papers.

Ask your jobber. Make arrangements to handle Alligator Steel Lacing. Write us for catalog, prices, etc.

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Lets Go"



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Send for this valuable hand book on belting. Used in many technical and agricultural colleges. We will tell you why Alligator is a doubly profitable trade builder. Leading jobbers stock our line. When writing give your jobber's name—manufacturers also invited to write us.

Stocked by the best Supply
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Get our proposition on
Portable Saw-Mills,
Gang and Single Edgers,
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TILLSONBURG :: ONT.

CANADIAN Motor, Tractor and Implement Trade Journal BUYERS DIRECTORY

This directory will help you with your buying and your planning. The advertisers listed here are thoroughly reliable and leaders in their respective fields. They are looking for live, wide-awake representatives. Study their advertisements carefully because they contain valuable information which will dovetail with your plans. We are glad to go to the trouble of arranging this list—to make it easy for you to select new lines. If it so happens that what you want is not here, write us, and we will tell you where to get it.

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Shaw Auto Salvage Parts Supply Co., Toronto.
Universal Battery Co., Chicago, Ill.

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Whitney Tractor Co., Cleveland, Ohio.

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NEWS—OF THE TRADE FOR THE TRADE

ALBERTA

VERMILION:—G. Law has the agency for McLaughlin cars and handles accessories, tires, oils and repairs.

CALGARY:—The Macklin Motors, Ltd., have moved into a fine new garage at 215 Eleventh avenue west. The new garage, which is said to be one of the most up-to-date in Western Canada is so constructed as to permit of a second story being built, which would provide storage space for 150 cars. Ernest McCullough is manager.

EDMONTON:—Robert Baker, who was for many years in the service of the Massey-Harris Co. in Toronto, died here recently at the age of 92 years. Mr. Baker had been living with his son Herbert Baker, manager of the Edmonton branch of the Massey-Harris Co.

CONSORT:—An automobile and tractor repair business has been opened by J. F. Hayes.

CALGARY:—A. B. Scarlett has purchased the business formerly conducted by the Motor Car Supply Co.

BRITISH COLUMBIA

VICTORIA:—Jameson and Willis, automobile dealers, have added a new wrecking car to their service department. The "wrecker" has a lifting capacity of 8,000 pounds.

VANCOUVER:—W. H. Clayton has purchased the automobile business formerly conducted by M. Roberts.

VICTORIA:—J. A. McDonald, proprietor of the Victoria Drive Yourself Auto Livery, View Street, in the near future will open a used car sales de-

partment in connection with his business.

CHILLIWACK:—The Auto Power Mfg. Co. is the name of a new concern which is looking into the possibilities for establishing a plant here.

NEW WESTMINSTER:—Ridley & Kennedy, local Ford dealers, have engaged the services of Albert French. Mr. French, who was formerly in the garage business for himself, will be in charge of the repair department.

MANITOBA

BRANDON:—Geo. J. Mearning has sold his interests in Western Motors, Ltd., to J. H. Donnelly, formerly sales manager of McRae and Griffiths, Winnipeg, Ford dealers.

WINNIPEG:—A new garage is being built at the corner of Redwood and Maine, by G. J. Mearning, formerly of Western Motors, Brandon. Mr. Mearning has secured the North End agency of the Ford Motor Co. The new garage will be known as Northern Motors, Ltd.

WINNIPEG:—Cadillac Motor Sales, have secured the agency for Nash cars.

WINNIPEG:—The Archibald Martin Motors Co., of Portage Ave, agents for Dodge cars, have found it necessary to enlarge their service and repair departments.

PORTAGE LA PRAIRIE:—Bray & McCuaig have purchased the implement business formerly conducted by W. C. Machan.

BRANDON:—Partnership has been dissolved in the garage business known as Dennison & Courtill. R. W. Dennison will continue the business.

ONTARIO

STRATFORD:—At a meeting of the automobile dealers recently, it was decided to hold an automobile show here some time in March or April. A committee consisting of J. McDonald, Roy Brothers and Henry Kalbfleisch, was appointed to go into the matter, co-operating with the Chamber of Commerce.

GEORGETOWN:—Thieves broke into the garage operated by J. N. O'Neil and Sons recently and stole a Columbia six-cylinder sport model, also a large number of tires, batteries, etc. The office was ransacked and everything of value taken.

SARNIA:—C. A. Pratt, who has been farming for the past three years, has opened an implement store with the Massey-Harris agency. Previous to going farming Mr. Pratt was selling the Massey-Harris line.

PORT ELGIN:—J. D. McIntosh, who for many years was an implement dealer at Port Elgin, died recently at Toronto.

BRAMPTON:—The Brampton garage, with sub-agencies at Inglewood, Malton and Huttonville, recorded in 1921 the best year in their three years' history. Their books show an increase of 20 per cent. in new car sales, an increase of 10 per cent in used car sales an increase of 30 per cent in automobile repairs.

BRANTFORD:—During 1921, motor licenses to the number of 3,195 were issued in Brant County, exclusive of Paris, while in 1920 only 2,549 were issued inclusive of Paris.

HAMILTON:—Summers Bros., Ottawa Street, have secured the agency for Overland cars.

MILTON:—Burglars entered the garage of Fred Robinson recently and stole several hundred dollars' worth of tires, automotive equipment, etc.

BOWMANVILLE:—A. W. Pickard has disposed of his garage to the Moffatt Motor Sales Ltd., of Oshawa. The new concern will handle Oldsmo-

bile cars, and Samson tractors, trucks and implements. They will also handle a full line of automotive equipment and a general repair business. W. Challis will be the sales manager and L. Harris will be in charge of repairs.

TAMWORTH:—J. A. Hunter has sold his implement business to the firm of Flynn, Burns and Whalen.

WHITEBY:—Walker Bros. is the name of a new implement concern opened here.

GUELPH:—The Northern Rubber Co., will erect a warehouse on Metcalfe street at a cost of \$11,000.

TORONTO:—The Lawrence Park Garage, Ltd., has been incorporated with a capital of \$100,000 to carry on a general automobile sales and repair business.

CHAPMAN:—A new garage has been opened here by Anderson Bros.

OTTAWA:—Beach Motors, Ltd., 186 Albert St., plan the erection of a large garage and showroom at Bank and Catherine Streets.

COTTAM:—A new garage will be built here by Stewart Mossop at a cost of \$10,000.

SASKATCHEWAN

ROSTHERN:—H. P. Leggo has taken over the garage business formerly conducted by A. Kralej.

REGINA:—W. L. Pront has opened a tire and vulcanizing business here.

WEYBURN:—H. Boulding has sold his implement business to C. T. Halliday.

LIMERICK:—G. Lundbloom has sold out to S. Smith. Mr. Smith is handling automobiles and tractors.

MARITIMES

ST. JOHN, N. B.:—Royden Foley, Ford dealer, is contemplating the erection of a new garage to meet the requirements of his growing business. Mr. Foley has recently added to his equipment a running-in and burning-in stand, reboring machine, three position motor stand, Dixie combination front and rear axle stand.

VINCENT MASSEY ELECTED HEAD OF MASSEY-HARRIS CO.

AT A MEETING of the board of directors of the Massey-Harris Co. held Dec. 23, 1921, Vincent Massey was elected president of the company to succeed the late Thomas Findley. Joseph M. Shenstone, Vice-president, was elected to the office of chairman of the board of directors. Thomas Bradshaw, the general manager, will act as the company's chief executive officer.

Vincent is a young man in his thirty-fifth year, and has been identified with the company for the past two or three years in the capacity of secretary and director. He was born in Toronto and is a son of Chester D. Massey, the honorary president of the company. He was educated at St. Andrew's College, Toronto, University of Toronto, and Balliol College, Oxford.

BRITISH INDUSTRIES FAIR

THAT many Canadian buyers will visit the eighth annual British Industries Fair, to be held in London and Birmingham from 27th February to 10th March, was the statement made in an interview by the British Trade Commissioner in this district. Buyers believe that the market is more stable and that a renewal of their overseas purchasing visits is due. This Fair is Britain's annual display of her manufactures and industries and the trade buyers' opportunity of selecting goods for the ensuing season's trade.

Since its inception in 1915 the British Industries Fair has grown until it is today the most important national trade fair in the world. In fact, one of the difficulties with which the organizers (The British Government Department of Overseas Trade) have had to contend has been the lack of adequate buildings, for the Fair has grown to such an extent that it has been no easy matter to adhere to the

policy of housing each section under one roof. To those who are familiar with the continental fairs which are held in innumerable separate buildings scattered throughout the length and breadth of a city, the advantages of such an arrangement will be obvious. For the 1922 Fair it has fortunately been possible to secure additional accommodation both in London and Birmingham to provide not only for the annual growth of the Fair, but also to find room for the great industries which have hitherto been exhibited at Glasgow. Textiles, however, will not be included in the 1922 Fair.

A very large number of industries will be represented at the Fair and a descriptive pamphlet containing a list of such will be mailed to intending visitors, together with a complimentary admission card, on application to the British Trade Commissioners in Canada. Their addresses are: 248 St. James Street, Montreal; 260 Confederation Life Building, Toronto; and 610 Electrical Railway Chambers, Winnipeg.

Ontario Implement Dealers Meet

THE Ontario Implement Dealers' Association held its annual meeting at the King Edward Hotel on December 14, at which Llewellyn Hall, of Hall Bros., St. Catharines, was re-elected President for the ensuing year.

The attendance was very disappointing, barely enough being present to warrant a meeting being held. However, those present made up for the lack of numbers by their enthusiasm.

The officers and directors elected was as follows: Llewellyn Hall, president; S. W. McKinley, of Midland, vice-president; Allan D. Gow, secretary-treasurer; Directors: T. A. Dick, of Bolton; W. J. Allen, of Chatham; R. O. Wilcox, of Beamsville; F. A. Bowen, of Petrolia; Alexander Hall, of Galt; C. W. Robinson, of Exeter; G. W. Smith, of Toronto.

In the morning, previous to the annual meeting which was held in the afternoon, a conference between the

members of the executive and representatives of the manufacturers was held. The matter under discussion was the association's request for an increase in the discount allowed the dealers. No decisions were arrived at.

It was suggested at the meeting of members to increase the membership fee from \$5 to \$10, in order to provide more funds for organization work. It was finally decided to make no change. A meeting of the directors will be held later on to go into the matter of increased discounts.

HALIFAX, N.S.:—The Metropolitan Motors, who are the McLaughlin dealers of this City are sharing their premises with the Nova Motor Company. The two companies in future will be under one management. They are handling Chevrolet, Hudson and Essex cars.



The plant of the Gary Motor Truck Corporation of Canada, Toronto. This company recently bought the patents and all assets of the Chase Tractor Corp. The company will manufacture Gary trucks and Chase tractors. An output of 1,600 trucks is planned for the first year. Production is now under way.

Sell the line already half sold

Stir Up Winter Business

Get the farmer's ear now while he has time to listen.

Start now—get him thinking about Melotte Cream Separator and Lister Milker. Close the sales later, if you have to, but start selling **NOW**.

Right now he needs a Lister Engine for woodsawing and every other kind of belt-work. If he feeds stock—you can sell a Lister Grinder. Now's the time to plant the seeds of silo and silo filler sales.

—And remember. Lister lines are best winter sellers, best the year around, because the Lister reputation, won by merit, is a guarantee of entire satisfaction.

R. A. LISTER & Co. (Canada) Limited
TORONTO and WINNIPEG

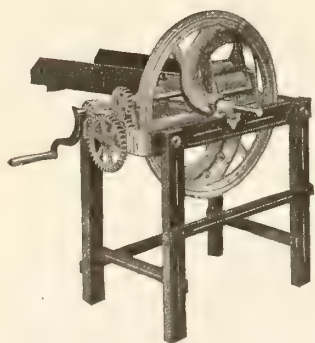
Have a Slice!

of the big business lying
all around you for

Peter Hamilton

Hand and Power

Feed Cutters



No. 6 STRAW CUTTER
Hand or Power

Boost Straw Cutters
and up go engine sales

Results from other farm lines may or may not be making you happy. Come! Get busy on Peter Hamilton Feed Cutters and reap a harvest of sales like other dealers all over the country are doing. All sizes of feed cutters from hand power to power run machines for big stock raisers. Territory open for live dealers who want

Big Business

We'll help. Circulars for distribution to your prospects. Write right now while the selling is good! Get your slice of good territory **NOW**.

Peter Hamilton Co., Limited
Makers of Agricultural Implements
Peterboro Ontario

Dairy and Household Supplies

LABOR SAVING IN THE HOME

"I PREFER to talk labor-saving machines for women to an audience of men," said a State Home Demonstration Leader. "Men will go away and do something about it, but the women do not seem to think the situation calls for action."

It does call for action. There are hundreds of thousands of women in the United States and Canada engaged in housework. Evidently, housework is a very essential business in the scheme of keeping alive. It is, therefore, worthy of some study and of systematic effort to make it efficient and less taxing.

"Women are making new places for themselves in the world," says Grace Marian Smith, "and housework must be so disposed of as not to occupy so much time that it crowds other things out of women's lives."

"It is not that the work is necessarily distasteful, though no honest thinker will contend that family life is profited because a woman spends hours and days and weeks and years of her life scrubbing. The trouble with housework is that there is too much of it. It's nerve-fagging, muscle-tiring, spirit-breaking power lies in the multiplicity of duties, the responsibilities that crowd, the having to be on time with the cooking and sewing, the preserving and baking, the sweeping and dusting, and somewhere along the line to bear and rear and dress and care for and train the next generation. It is work beyond the time and strength and knowledge which women have to give."

"It is not only important, it is absolutely essential that we take advantage of everything science and research can offer to lighten the burdens and shorten the hours required to do the less necessary tasks, so that there may be time and strength and enthusiasm for the more important duties."

MILKING MACHINE SUCCESSFUL

GREAT progress has been made in the design of milking machines in the last ten years, according to Prof. O. Erf of the Dairy Department of the University of Ohio. The fundamental principles of the machine have not been altered but the mechanical details have been perfected to a very great degree. The practicability of the milking machine has been fully established.

One of the obstacles in the past has been the power problem. This is being solved, however, by the universal use of the gas engine and the increased use of the electric motor. Reliability and certainty of power increase the practicability of the milking machine at least 50%, especially where electricity is available.

Much of the success of the milker, however, depends upon the operator and the condition in which he keeps the machine, but there is no question but what to-day most mechanical milkers are more efficient than the average hand milker when everything is taken into consideration, and their increased use in the future is not a matter of conjecture.

GENERAL MOTORS TO DOUBLE FORCE AT WALKERVILLE PLANT

EARLY in 1922 the General Motors Corp. will double the working force at its Walkerville plant. At present the "A" and "B" plants are operating with 500 men. It is understood another force of equal size is to be employed.

SELLING THE FARMER'S WIFE

THERE are two particularly clear and lasting pictures in my memory of my childhood days, one of a dimly-lighted cellar having two low benches with a row of shiny shallow pans of milk on them and mother stooping over the pans skimming the cream into a stone jar, "the cream jar"; the other of the back porch of the old farm home with mother sitting on the edge of a chair monotonously pounding up and down the dasher in the churn while keeping her eyes on the little ring of cream around the cover hole for the change which means that the butter is coming, says a farmer's wife in Power Farming.

Now I am the mother in a farm home. In a small concrete building near the house is a round black iron object about as big as my head. It stands on three little black varnished legs. There is a belt attached to it. At one side of the black object stands the cream separator and at the other a barrel churn. Morning and evening my husband pours the milk into the separator, adjusts the belt, and the little black object in a short time gets the cream out of the milk, the task mother used to toil over so long.

A couple of times a week I put the cream in the churn, attach the belt of this same small object to the churn and immediately the churn begins to go round and round and continues to revolve until the little yellow lumps are floating on the buttermilk. The same little black object—an electric motor—which did the separating has done the churning, and all without a bit of labor on my part.

What electricity does to help the farmer in his work is much talked about, but what it does for the farm woman, though less discussed, can scarcely be overstated. If an electric farm plant did nothing but take the cream out of the milk and the butter out of the cream, much of the old-time drudgery of woman's work on the farm has been abolished, but it does the washing on Monday and heats the iron Tuesday and Wednesday. It banishes that dreariest of jobs—cleaning and filling several lamps—as well as substitutes bright lights for dim; it does a number of other small jobs.

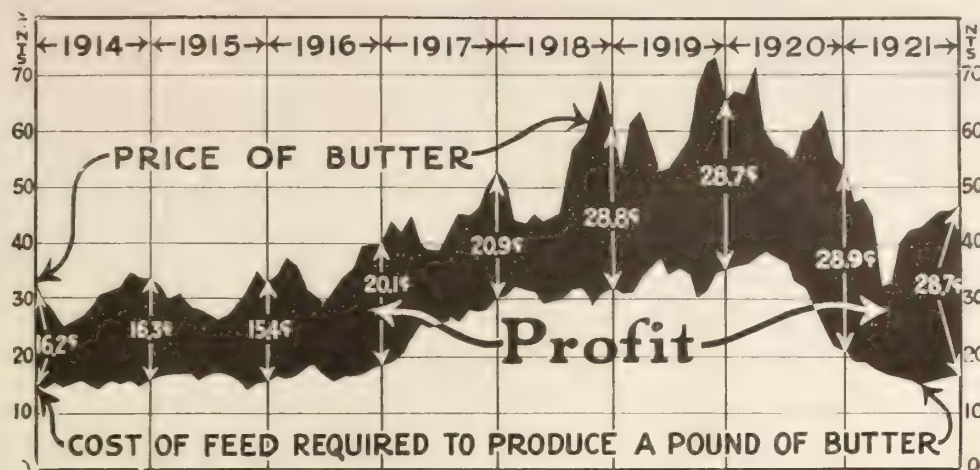
I wonder if there ever was a farm once it had electricity went back to the old way. There is another wonder which I am wondering, and that is why farm women are not taking the lead more in this movement to electrify the farm.

NEW MOTOR DRIVE SEPARATOR

TWO new cream separators have been placed on the market by the Burrell Company, of Little Falls, N.Y.

Both separators are constructed with strength and simplicity of design. The total height of each of the new machines is 47 inches, and the crank is at the standard height of 32 inches from the floor. On account of the simple gearing and the use of an annular ball bearing to support the bowl, the machine is light-running and quiet. All high-speed parts are in an oil-tight case.

The machines have been designed especially for motor drive. The hand machines are so designed that they can be converted to electric drive within a few minutes, only the motor, the drive belt and the pulley being needed to make the change. Westinghouse motors are used.



One business that hasn't suffered

Look at this diagram. It shows just how profitable the production of butter or butter-fat has been since 1914, and that it pays just as big today as ever.

The top line of the black area shows the price of butter, while the bottom line shows the cost of feed required to produce a pound of butter. The thickness of the black area then shows the spread between cost of feed and price of butter—or the net profit. For example, near the end of 1921, feed to produce a pound of butter cost 16.9 cents; butter sold for 45.7 cents, leaving a difference of 28.8 cents per pound, or 170 per cent. profit.

It is easy to see why De Laval Separators and Milkers are selling so well. Are you getting your share of the De Laval business from your locality?

THE DE LAVAL COMPANY, Ltd.
MONTREAL PETERBORO WINNIPEG EDMONTON VANCOUVER



The De Laval Milker

Both save time and eliminate drudgery twice a day, 365 days a year.

Both increase the quantity of the product.

Both improve the quality of the product.

Both are made by De Laval, the oldest, largest and best-known manufacturers of its kind in the world.



The De Laval Separator

Sooner or later you will sell the
De Laval



**—the Piston Ring
that goes to work
at once.**

Exceptional care is taken in the making of Wilkie Piston Rings. The metal used is prepared by a special formula arrived at after fourteen years of piston ring making in one of the greatest foundries in America. This exceptional metal is very carefully machined, so that the finished "Wilkie" is perfectly round and has a turned surface—it seats quickly and perfectly.



Wilkie Piston rings do not have to be fitted. They're made to fit. They seat quickly—get right on the job without fussing around. Immediately they are installed compression leaks are stopped, oil pumping ceases, gas and oil consumption is lessened, power is added.

Recommend and install Wilkie Piston Rings—less work for you, greater satisfaction for your customer.

"Wilkie" Price List

Size		Price
Up to 3 $\frac{3}{8}$ x $\frac{1}{4}$	1	\$.25
Up to 3 $\frac{3}{4}$ x $\frac{1}{4}$	1 .....	.30
Up to 4 in. x $\frac{1}{4}$	1 .....	.35
Up to 4 $\frac{1}{2}$ x $\frac{1}{4}$	1 .....	.40
Up to 5 in. x 5-16	1 .....	.45
Up to 5 $\frac{1}{2}$ x $\frac{3}{8}$	1 .....	.50
Up to 6 in. x $\frac{1}{2}$	1 .....	.55

Above prices are for standard sizes in width and diameter.
Larger sizes quoted on.

Do the work right in your own shop

A universal Cylinder Reboring Tool installed in your shop means additions to your earnings right from the start. No need to send motors to the factory, you can do exactly the same quality work right in your own shop. Ford, Dodge, Studebaker, Buick, Paige Detroit and Chalmers factories use this same tool. Install it and have all the cylinder reboring in your locality done at your shop.

Step out on a new path to profit, take the first step by writing for full particulars of the Universal Cylinder Reboring Tool.



Windsor Machine and Tool Works Limited

312-316 Pitt Street West, Windsor, Ontario

CANADIAN MOTOR, TRACTOR ^{AND} IMPLEMENT TRADE JOURNAL

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TORONTO, FEBRUARY, 1922

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\$2.00 Per Year



Fashionable

"Whenever a bunch of men gather in our community it is 'fashionable' to start discussing the dairy industry,"—so writes one of our live agents.

Similar reports come from all sections of the country. The dairy cow is causing an unprecedented amount of favorable discussion. And a mighty good fashion it is—one which will bring ready money, good markets for feed, increased soil fertility, a steady income; in short, prosperity, to every community that follows it.

The extraordinarily favorable position of the dairy business naturally has greatly increased the sale of De Laval Separators and Milkers, as Dairying and De Laval go hand in hand.

If we are not adequately represented in your community, get in touch with us. De Laval is one line which will pay you well under present as well as any other conditions.

THE DE LAVAL COMPANY, Ltd.

MONTREAL PETERBORO WINNIPEG EDMONTON VANCOUVER



The De Laval Milker

Both save time and eliminate drudgery twice a day, 365 days a year.

Both increase the quantity of the product.

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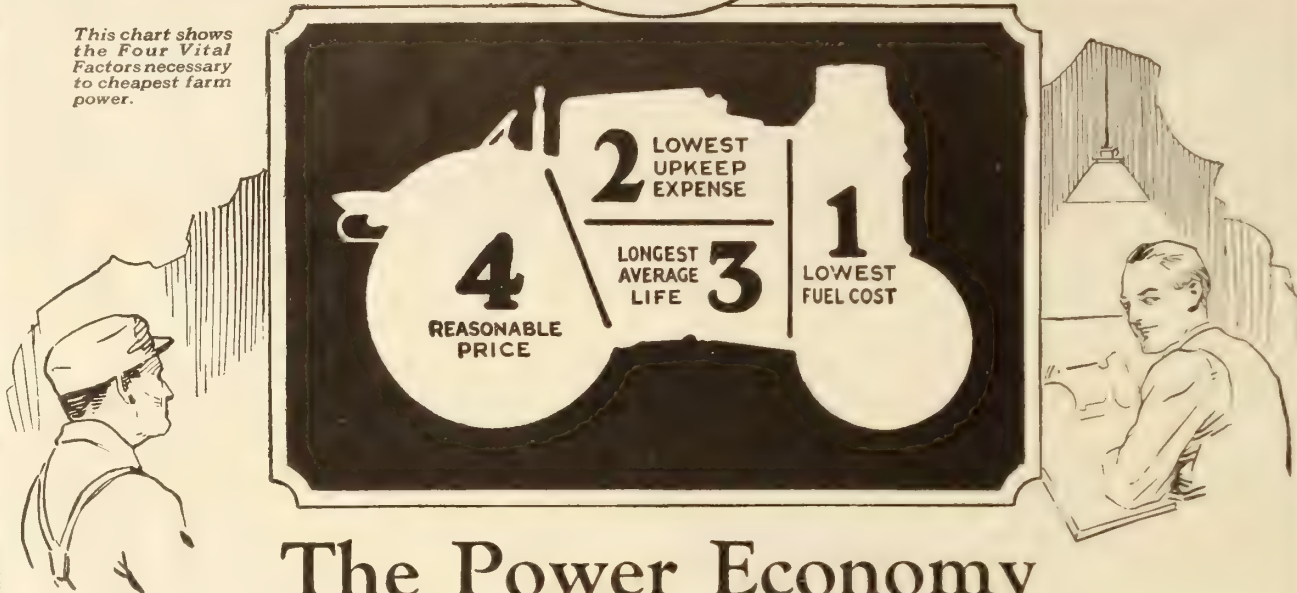


The De Laval Separator

Sooner or later you will sell the
De Laval

OILPULL TRACTOR

This chart shows the Four Vital Factors necessary to cheapest farm power.



The Power Economy Problem Solved

Cheaper Power the OILPULL Way

YOU know that economy has always been the big thought in the farmer's mind when buying a tractor. How much his power costs per year determines, in a large measure, his operation cost and his profits.

Four factors that make cheap power are: (1) Low Fuel Cost; (2) Low Repair Cost; (3) Long Life; and (4) Reasonable Purchase Price.

When these Four Vital Factors are combined in a single tractor, cheap power must result.

Tractor makers have known this and have worked toward that end for years. But it has remained for OilPull engineers to solve the problem. In this perfected, oil-burning tractor you find them combined for the first time.

Cheapest Power and Why

These OilPull records tell their own story. (1) An OilPull has held all official National Fuel Economy records for 10 years. (2) Careful investigations indicate that average annual upkeep expense among OilPulls is 50% less than the national annual average determined by Government Experts. (3) The length of life among OilPulls averages more than 10 years. (4) OilPull prices are fair and reasonable.

* * * * *

OilPull design and high standard of construction are largely responsible for these records. Of prime importance, however, is *Triple Heat Control*—now perfected and used on all OilPull Tractors.

Triple Heat Control

Triple Heat Control is a scientific system of oil burning that positively *gets the power out of cheap kerosene*. Absolutely controls temperatures. Motor is never too hot—never too cold. Warm for light loads. Gets cooler as load gets heavier. Only system using oil instead of water for cooling. The system that makes possible the OilPull written guarantee to successfully burn cheap kerosene at all loads and under all conditions up to its full rated brake horse power.

Do You Want the Facts?

The OilPull has everything the farmer wants—low fuel cost, low upkeep cost, long life and reasonable price. It will pay you to be fully informed. We suggest that you write at once for complete literature.



The Advance-Rumely line includes kerosene tractors, steam engines, grain and rice threshers, alfalfa and clover hullers, and farm trucks

ADVANCE-RUMELY



A Year of Opportunity

This is the year when established dealers can capitalize on their aggressiveness and experience. Conditions have lessened competition and broadened the dealer's market. The good business of the community will come in greater volume to the determined dealer.

Likewise, manufacturers who are well established as builders of quality lines, whose standing is unquestioned and whose sales policies are both fair and aggressive, will find 1922 a year of opportunity.

This Company is prepared to meet aggressive dealers more than half way in an effort to secure volume in 1922. In quality, our products stand second to none. Our extensive line of Tractors, Plows, Threshers, Silo Fillers, Baling Presses and Road Machinery is backed by strong, aggressive sales and advertising organizations determined to get every possible dollar's worth of business this year. Our prices are at bed rock and we are selling a new and improved product for the lower prices.

Our dealer organization is steadily growing in strength and in power farming sales ability. If you are determined to gain leadership in the power farming machinery business in your territory, write or come to our nearest branch house and learn how Case products, sales helps and advertising will give you real opportunity for 1922.

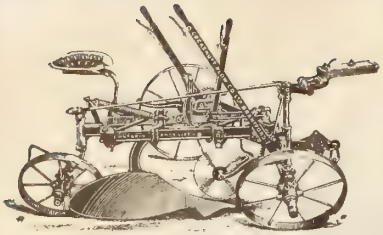
J. I. Case Threshing Machine Company
Dept. P215 Racine Wisconsin

Factory Branches

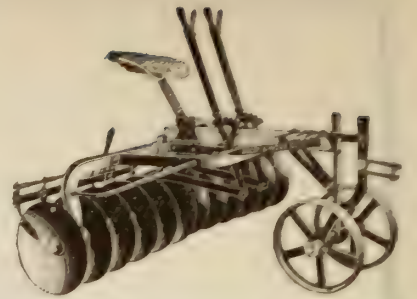
Alta., Calgary—Edmonton
Sask., Regina—Saskatoon
Man., Winnipeg—Brandon
Ont., Toronto



NOTE: We want the public to know that our plows and harrows are not the Case plows and harrows made by the J. I. Case Plow Works Co.



Cockshutt-- Frost & Wood Lines for Spring



A new buying season for Plows, Harrows, Cultivators, Seeders, etc., is opening with materially reduced prices. Farmers in every locality are in need of new equipment. Get your share of this profitable business by aggressively pushing the Cockshutt-Frost & Wood line. : : : :

Farmers this year, perhaps more than ever before, realize that efficient machines and methods are essential to success in their business. They are planning to replace old and worn out equipment with new and better machines. The Cockshutt-Frost & Wood line will pay you well for the time you put on it.

These lines of plowing, tillage and seeding implements are giving satisfaction because they're built specially to suit conditions as they exist in your neighborhood. There are sizes and styles of each line to meet the demands of every customer. It pays to sell a *full line*, backed by one responsible organization.

Talk it over with our traveller or write our nearest branch for full particulars

*In Western Ontario & Western
Canada:*

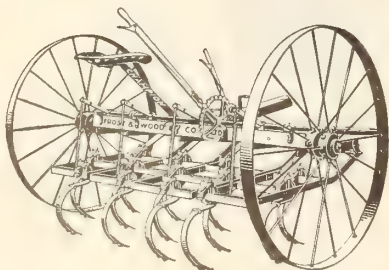
Cockshutt Plow Co. Limited

Brantford	Winnipeg	Regina
Saskatoon	Calgary	Edmonton

*In Eastern Ontario, Quebec and
Maritime Provinces:*

The Frost & Wood Co., Limited

Smiths Falls, Ont.	Montreal, Que.
Quebec, Que.	St. John, N. B.
Truro, N. S.	Charlottetown, P. E. I.



CANADIAN MOTOR, TRACTOR AND IMPLEMENT TRADE JOURNAL

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TORONTO, FEBRUARY, 1922

No. 2

Responsibility of Manufacturer and Dealer to the Customer

What Amount of Service Should the Dealer Expect From the Manufacturer, and What Amount of Service Should the Customer Expect From the Dealer Is Discussed
In This Article by the Manufacturers

NEXT to "efficiency" I believe "service" is the most abused and misused term in the English language—a word that can mean so much, yet is frequently employed to express so little.

Service to the average farmer and, regrettably, to the average dealer, means simply ordering and handing out an occasional repair part, or perhaps running out into the country to fix a recalcitrant binder or tractor. And therefore we hear much discussion as to how much service the dealer should give his farm trade, how much of it should be free, and how much of it paid for. But in taking this mercenary view of service, the dealer is overlooking the broader meaning of the word and is missing completely the business-building possibilities by which he could climb to prosperity and community esteem. Service is the only thing that justifies the dealer's existence in the commercial scheme of his town. It is one thing that justifies the profit he must ask in order to succeed in business. If the farmer received nothing in the way of service from the dealer, he had better buy his machine from the mail order house because on the basis of the original purchase price he could make money by doing so. It is the after-sale service he gets from the dealer that causes him to pay the dealer's price, including a living profit. This he will gladly and uncomplainingly do if the service he receives from the dealer be worth while.

There is such a tremendous opportunity to make himself a real power and influence in his community that the average dealer overlooks it because of its very bigness.

Dealer service to the farming community consists not only of keeping every man's machinery in good running order but also in being the recognized authority on questions relating to agriculture. The dealer should know and be able to advise regarding the selection of seed and the most profitable varieties of hay, potatoes, fertilizer, etc. He should know live stock and be able to give his farm customers the benefit of his information. He can become the Court of Last Appeal on all farm questions from the building of a hog house to figuring the belt speed for an ensilage cutter. He can make it so pleasant and profitable for farmers to talk to him on all farm subjects that talking to him about the purchase of a manure spreader is simply a matter of course.

Manufacturers' Duty to Dealer

If a dealer will thus grasp the meaning of true service—the kind that is worth thousands yet cannot be charged for—the other kind of service (the mechanical kind, like handing out a spur pinion) can be sold at a fair price and the farmer will gladly pay for it in order to get the other and more valuable assistance.

So far as the manufacturer is concerned, the dealer is entitled to expect a service of much the same nature but different in application. In addition to selling the dealer a reputable line of farm operating equipment, the manufacturer should lend himself and his facilities to the business of local dealer sales promotion. He should help the dealers build themselves and their business. Prompt ship-

Manufacturers should be in a position to circularize lists of prospective purchasers with sales letters and descriptive machine folders at the dealer's request. These lists, of course, should be prepared carefully and provided by the dealer. This is efficient sales promotion and is one of the most valuable aids that the manufacturer can give to his dealer.

INTERNATIONAL HARVESTER CO.

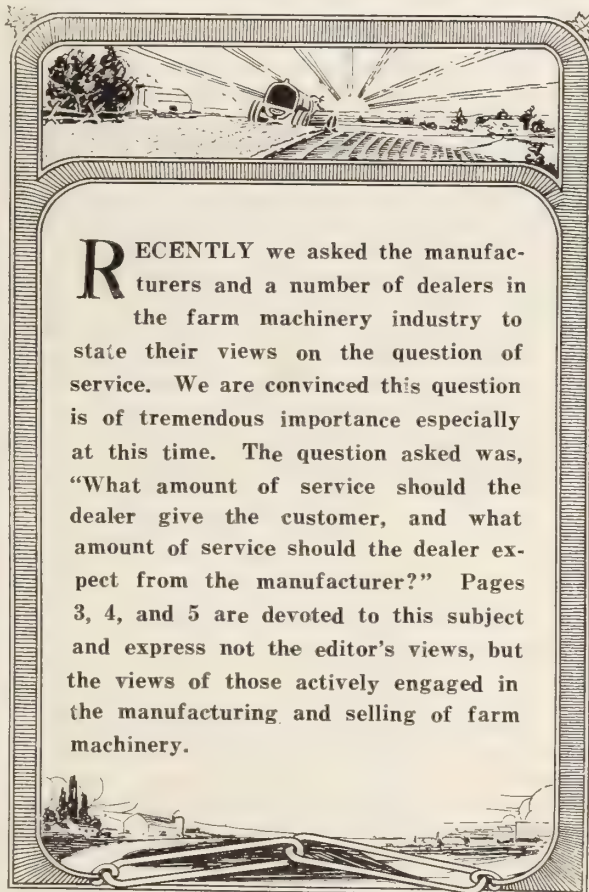
Service at Cost Should Be Dealer's Slogan

IN connection with yours of January 4th, we have much pleasure in giving our views on the question of Service. We are glad that you are giving publicity to this question, which, as you state, is a very live subject and should be discussed freely by dealers and manufacturers.

Taking the first side, namely, "What amount of service should the dealer give the customer?"—our ideas are as follows. When the dealer takes up a certain line of goods one of his first steps should be to learn as much about these goods as possible. He will find the manufacturer as well as the local block man, only too anxious to give him a training so that he can install the goods and be in a position to come to the customer's aid in the case of subsequent trouble. The dealer should recognize that not only is the installation of goods, and giving service on them, clearly up to him, and a very necessary part of the work for which he is paid a commission, but it is very much to his interests to be able to handle this work as it will give his customers increased confidence in him. Imagine the impression upon a customer who has purchased, say, a farm engine with which a few weeks after he has installed it, he is experiencing trouble, to be told by the local agent on calling him up, that the agent knows nothing about that class of machinery and will have to send word to the manufacturer thereby entailing two or three days' delay and perhaps additional expense. Were the agent able to jump in his car and give that customer "service," getting his engine going within half an hour or so, the customer would surely get the impression that this was a real live agent to be relied upon in time of trouble and the man to whom he would go at once when requiring further machinery.

Service Should Not Be Given Free

We would like to make it clear, however, that we do not suggest that the dealer should do this subsequent service work free of cost. We believe it to be the dealer's duty to install goods free of charge and instruct the customer in their use. After that we believe that every customer should expect to pay when he requires service. This is clearly understood in the automobile trade and there is no reason why



RECENTLY we asked the manufacturers and a number of dealers in the farm machinery industry to state their views on the question of service. We are convinced this question is of tremendous importance especially at this time. The question asked was, "What amount of service should the dealer give the customer, and what amount of service should the dealer expect from the manufacturer?" Pages 3, 4, and 5 are devoted to this subject and express not the editor's views, but the views of those actively engaged in the manufacturing and selling of farm machinery.

ment of orders, assistance in obtaining redress from the railroads and actual sales assistance are the ordinary ways in which manufacturers serve their dealers. There are other ways. The manufacturer is advertising regularly in various mediums and he can with very little change adapt this advertising work to the local dealer's needs. Thus a dealer gets the highest class copy and display for the mere cost of the space. Catalogues and advertising literature should be sent to the dealer by the manufacturer and the dealer should recognize its worth as a sales stimulant by putting it in an attractive rack and keeping it clean so the farmer can help himself and thus help to sell himself.

it should not apply to the implement trade. No dealer can afford to go on giving free service and if he has a proper understanding with his customers he will not need to do so.

As regards the second point, namely, "What amount of service should the dealer expect from the manufacturer?"—we believe that the manufacturer should be ready and willing to give any of his local dealers a full course of instruction in the operation of the machine for which he takes the agency. This can sometimes be done by the local blockman, but failing this, the manufacturer should hold a school for the purpose of training local agents on the installation, operation and adjustment of the machinery handled. It is understood, of course, that the manufacturer will guarantee the goods shipped, and in event of any fault in workmanship, materials or construction, will undertake to remedy this without charge. Outside of this, however, the manufacturer cannot be expected to give free service. In other words, the dealer should not expect that the manufacturer will send a man specially to start every machine he sells, or send a man to adjust some trivial trouble which the dealer ought to be fully competent to handle himself. Even if the dealer is prepared to pay for such special service, it would be far better if he were able to attend to it himself. The dealer could make a profit on his service department if run on the right lines. He is on the spot and is the man who is in personal contact with the customer and to whom the customer should look for assistance in time of trouble. The expense incurred in sending a man from the factory 50, 100 or 200 miles should never be incurred except in the case of emergency, as someone has to pay this expense and very naturally the consumer pays it in the long run and therefore he might as well pay it first as last and if he has to pay it to the local agent, the cost will be much less.

Dealer Should Have Service Department

The local dealer, therefore, can assist his business and give much greater satisfaction to his customers by maintaining a service department, however modest it may be and even though he himself is the only service man. This should not interfere unduly with sales, in fact it should assist sales. We would suggest every dealer should hang up in his store a notice "Service at Cost," and get his customers accustomed to the idea that they may rely upon obtaining at any time reasonable service at a reasonable cost.

W. J. ELLIS,

R. A. Lister & Co., of Canada

Service Should Start In The Designing Room

THE amount of service the farm machinery dealer is expected to give his customer should be unlimited and given graciously. I would not say always gratuitously, but to be remunerated for these services according to the merit of the individual circumstances.

In days gone by customers have expected unlimited free service from the dealer, beyond all sense of reason in many instances, and the dealers invariably were liberal in these services. With the modern methods of selling farm machinery and the accompanying of each sale with complete instructions for setting up and operating, the customer by simply reading these instructions and heeding them, can avoid many of the demands he has heretofore made upon the dealer. And after reasonable free service by the dealer the purchaser should not hesitate, nor should the dealer withhold in collecting from his customer for such service. The farmer should be as willing to pay for this service on any implement he may buy from the dealer, as he would on his automobile to the automobile dealer. In fact, more liberally, because it usually necessitates the implement dealer going into the country to see the machine that requires the service, whereas on the other hand, the article is brought in to the dealer's place

of business where the service can be much more easily given.

The implement dealer whenever he makes a sale should be willing at all times to render his customers every possible service in the setting up of machines and to show them how the machines should be operated. Many dealers are very slipshod in their efforts in this regard. The dealer must not permit his interest to cease after the order is signed.

The dealers on the other hand are entitled to expect from the manufacturers strictest attention to their orders. This must be assumed at all times. Service in farm machinery is obtained solely through the superior merits of the goods. The service expected by the dealer must commence from the drafting room and from the time the steel ingot enters the furnace, and all through the plant until the completed article is finally inspected and in transit to him. Subsequent services are almost wholly dependent upon the quality of the article manufactured. Quality must be the basis of value and the better the article the less will be the services needed later. Cheap implements are made for

WHAT IS SERVICE?

Service is more than ordering and handing out an occasional repair part to fix a tractor, binder or threshing machine. It is the link that binds the dealer to his customer. Without it the farm machinery and automotive industries could not carry on for long.

After reading the articles on pages 3, 4 and 5, you must have something to say on the subject. Just take a minute off—right now—put your ideas and criticisms on paper and send them along to the editor.

customers who cannot pay more. The farmer who buys them invariably pays more in the end.

Extraordinary care in selecting materials, careful designing, adjusting, fitting, testing and inspecting, high standard of workmanship will eliminate later much costly service.

Many dealers fail in the implement business because they depend largely upon sales service from the manufacturer, and through lack of initiative in aggressively working their trade by their own resources. In other words, they should be live implement dealers instead of simply warehouse men. Live dealers can, and usually do take care of all field trouble, much of which is often the result of improper setting up or failure to operate according to directions. The manufacturer is always willing to assist the dealer in making the machines do the good work for which they were designed.

J. W. KOTTMEIER,

John Deere Mfg. Co.

Instruction Should be Given Free

ANSWERING your first question on amount of service a dealer should give the customer—we believe that every dealer should be in a position to furnish enough service adequately to satisfy his customers. That means he should be in a position to correct at least all of the minor troubles that are liable to come up and also have a knowledge sufficient to instruct new operators and the proper care in use of the machine.

In turn the dealer should expect to get prompt repair service from the manufacturer and also services of a competent repair man to solve the most difficult tractor problems. This does not necessarily mean free service, although it often does.

If a dealer sells a tractor and makes a fair profit on the sale, he should expect to give at least enough free service to instruct the new owner properly.

ADVANCE RUMELY THRESHER CO., INC.

Manufacturer's and Dealer's Services should Satisfy the Customer

IN our own business, where we deal with our customers direct, we expect to give every service that our customers require. I would suppose that a customer would expect any service that might be necessary at the hands of the dealer from whom he had purchased machinery, and he would be entitled to look to agent for any service that he was unable to take care of himself. If the dealer did not equip himself to give the service he would not retain that customer's trade.

As to the service to be expected by the dealer from a manufacturer, this I should imagine would naturally depend upon the nature of the sales agreement under which the goods were supplied. I can understand how it would be possible for some dealers to buy at a price relieving a manufacturer of all service and simply the obligation to supply what the dealer pays for. On the other hand, there might be an arrangement between manufacturer and dealer where, for a different price consideration the manufacturer would undertake a certain amount of service in co-operation with the dealer.

MASSEY-HARRIS CO., LTD.

There Is More in Merchandising Than Consummating Sales

THERE is nothing more important to the user of a machine than dependable service. This service may consist of:

First: Advice and instruction.

Second: Actual assistance in adjusting or operating the machinery.

Third: Supplying repair parts.

If the owner cannot get this service when it is needed, it may mean serious inconveniences to him.

Service with respect to farm tractors, grain threshers and such machinery must be prompt and efficient and this kind of service cannot be rendered the owner direct by the manufacturer. The dealer must assume this responsibility and make service the important part of his business that it should be.

This does not mean free service. Service should be charged for at reasonable rates. It is equally absurd and contrary to all business principles to give away service promiscuously as it is to give away merchandise.

Manufacturers should in all reasonable manner assist dealers and co-operate with them to the end that they may render efficient service to their customer.

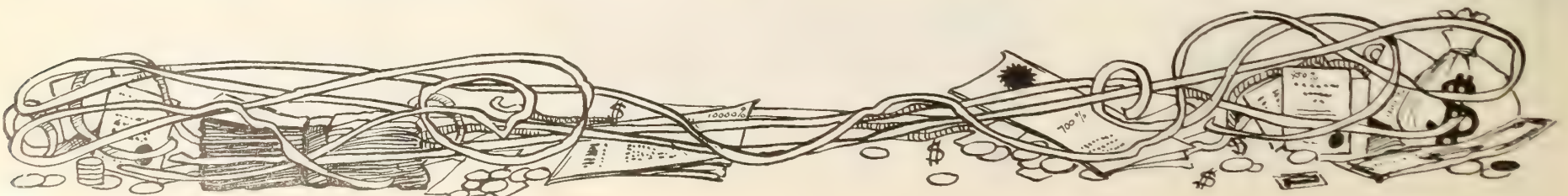
They should, through their representatives, assist the dealers in gaining knowledge of the construction, operation and application of farm machinery and supply them with such literature as will aid them in keeping well informed with respect to this machinery.

The manufacturer's service men and salesmen should also call on the dealer from time to time to assist him in any way possible with his service problems and make special calls to handle for him persistent or baffling cases of serious trouble which the dealer is unable to remedy.

The dealer should not ask the manufacturer to perform ordinary service work, for this procedure involves too much delay and unsatisfactory service to the customer.

The dealer must do all he can to consummate sales; he must also render such service as will enable the customer to derive efficient and continuous use from the machinery at the lowest reasonable cost. It should be understood that commission on a sale is not properly earned without the dealer's disposition and ability to render this service.

A. H. ALFSEN,
J. I. Case T. M. Co.



Dealers Can't Afford to Give Something for Nothing

These Dealers Say There Should Be No Such Thing As Free Service—Dealer Should Have Confidence in His Goods; Should Charge for All Service, Apart From That on Defective Material; Should Not Be Dependent on Manufacturer—Essential to Have Parts on Hand But Dealer Should Avoid Carrying Very Heavy Stock



THE MATTER of "Service" is a very important one in the Implement trade, particularly since, through a wrong interpretation of its meaning, many dealers have been losing a large percentage of their profits.

It is a proper function of any business to give "Service" to customers and to the community, and, if it cannot do this, the business cannot live. There is a certain service that should be free but also one that should be paid for, and it is the inclusion of too much of the latter class with the free service that is embarrassing.

The service requirements of an implement dealer should be to carry a stock of goods commensurate to his turnover, to supply his customers' needs with these in return for cash or its equivalent, to guarantee that machines be properly set up when sold and give the purchaser all necessary instruction in regard to the proper use of the implement. There, I believe, his duty ends.

Should further service be required by reason of faulty assembly in the factory, or because the article is not really past the experimental stage, the manufacturer should bear the expense incidental to making it work satisfactorily.

If service is required through the fault of the purchaser—either through carelessness or ignorance—he should be responsible for the cost incurred.

The dealer, in taking responsibility from both ends, has been incurring heavy operating costs that his gross profit does not allow. Every dealer has been confronted many, many times in the year with the necessity of giving service, which was properly chargeable to manufacturer or purchaser.

Should Not Carry too Heavy Stocks

I have seen in various trade magazines the story of some implement dealer who prides himself on the fact that no customer need leave without any repairs that he requires—that a stock was carried that made this impossible. This always appealed to me as ridiculous. To do this means the carrying of a very large stock of stuff that very quickly goes out of date and is therefore a dead loss. This does not appeal to me as good business for the ordinary dealer. It is his duty, as I understand it, to carry a reasonable stock so that all ordinary requirements can be filled. He should be able to turn that stock over as quickly as a hardware stock. No more should be expected.

To sum up—no service should be required from the implement dealer further than what is considered good business on the part of other lines of industry. Extra service should be paid for. The implement dealer less than anyone else in business can afford to give something for nothing.

HUGH RORISON, Moose Jaw, Sask.

Service Will Build Big Future For Power Farming Dealer

HAVING been born and raised on a farm and after handling a farm for myself for six years until eight years ago when I entered into business as an agent for farm machinery, I feel that I am in a position to give an unbiased opinion on the subject of service from the customer's as well as from the dealer's point of view.

The first service a dealer should offer is a sure

knowledge of the goods he is handling. When a dealer knows his machines thoroughly he is in a position to offer a real service to a prospect on his first canvass, namely, a clear and understanding representation of the goods he desires to sell and the farmer wishes to buy. Next, and herein lies one of the best services a dealer can render his prospects, and one which will not easily be forgotten even if a sale is not made, is giving a true representation of the article offered for sale. In my experience I have found if this is done a great deal of trouble is avoided after a delivery has been made. I consider this point well worth carrying out, even if an occasional sale should be lost by so doing.

After the sale is made and the article delivered I make a point of seeing that it is properly set up and the owner thoroughly instructed in its construction and operation. This service, as well as any further service during the first year which might seem reasonable to the dealer, should be given free.

Old Type Dealer Disappearing

In the foregoing remarks I have particular reference to the farm machinery business. In late years the lines handled in most sections have changed so that there is little room for the old time "Machine Agent" (with his "balky horse" and "kicking cow" dealer.) This old type dealer has either disappeared or is adapting himself to the new condition of things.

No dealer can make a success of any business without being in a position to give prompt and satisfactory repair service. Since the gasoline engine, automobile, tractor, and now the motor truck are occupying such an important part in the development of our agricultural districts, I cannot see how any dealer in future is going to be able to compete successfully in this growing business unless he is in a position to take care of this repair business, which has already reached large proportions, or at least be associated with someone in whom he can depend to give satisfaction to his customers. This last should only be a temporary arrangement. To me it seems, no system can compare with the one in which the dealer who sells the goods handles the service end also. Competent labor should be employed to take care of any repair service.

Financing Is Dealer's Big Problem

Of course all this necessitates an investment requiring considerable financing. And right here, I think the largest problem dealers have to face at the present time, and a point which will bear considerable discussion in such mediums as M. T. J., is the problem of wise investment in business extension under present conditions.

As to the service the dealer should expect from the manufacturer I would say he should expect goods of the highest quality, with a reputation for good service, and guaranteed to do the work for which they are designed, built, and sold. Next to supplying first-class machines, the manufacturer should be willing and in a position to supply all repair parts promptly for all machinery sold over a period of years. I find there is nothing in this business which the customer notices and checks up so much as repair service, whether it be in connection with the company directly or through the dealer.

Dealer Should Stand on His Own Feet

In former years a good deal of help from the manufacturer in selling was expected by the dealer. The time has come, however, when the dealer should stand on his feet. Success depends a great deal more on



satisfactory service than on mere selling. Sometimes, of course, in the case of the introduction of a new machine, it is to the manufacturer's as well as the dealer's advantage for the manufacturer to send a salesman to help in the first sales.

In the foregoing I have tried to give what I consider the most important aspects of the matter called service. The subject is a broad one, and much more could be said. I shall read with great interest anything which other readers may have had to say on this subject.

A. T. ALLISON, Inkerman, Ont.

This Dealer Suggests a "Service Day" on Cream Separators

SERVICE may be divided into two parts, expert assistance and promptness in supplying repairs.

With the smaller implements little expert assistance should be required. Care should be taken that machines are carefully set up and working freely before delivery is made to customer and little assistance will be needed in the field. First year service should be free. If considerable repairing is needed on old binders I get customers to bring them in during the slack season in June and July and do not undertake to do any work on old binders in the harvest time and find this works well, as there is not time to do it in the busy season.

I encourage cream separator customers to bring in their machines any time they need adjustment and charge only for repairs used. I find this good policy as otherwise the separators get no attention and their reputation suffers. The average time taken is less than half an hour and the manufacturer will usually co-operate with the dealer and have a man spend a day or two at his warehouse if there are enough machines in the territory to warrant it, in which case a service day should be announced in the local paper.

Encourages Farmers to Bring in Machines

With engines and tractors the case is different. If small engines give trouble try and get the farmer to bring it in and make no charge the first year. It is not profitable for the average dealer to stock any but a few minor parts for engines.

With tractors a thorough instruction in the field should be given when machine is delivered. If more than one is delivered at the same time the manufacturer will usually send a man to deliver them and instruct the purchasers. No charge should be made for first year service although it is hard to make any hard and fast rule. Sometimes a man will require very little assistance the first year in which case I would help him a little should he need it the next year. One will occasionally come across a man who will call for help too often in which case one has to remind him that while you are willing to give him any necessary service he must first do his best to overcome his troubles or he will never make a successful operator.

The manufacturer should be willing to instruct the dealer and the first two or three purchasers of tractors, and give the dealer assistance in case any small machine fails to give service and he is unable to locate the fault. My experience has been that the manufacturers are willing to give all the service that a reasonable man could want.

WILFRED F. HARVEY, Macoun, Sask.

Dealer's Frame of Mind Has Important Bearing on Tractor Sales

Don't Look on Gloomy Side of the Picture—Remember There Are Always Some Farmers In a Frame of Mind To Buy, Who Have the Money To Buy If They Can Be Convinced It Is To Their Interest To Do So

THOUSANDS of tractors were sold in 1921. This in spite of the fact that a year ago many people were of the opinion that farmers were not in a mood to buy and did not have the money to buy even if they were in the mood. Facts proved however that tractors and other machines could be sold when the right methods were used. The total quantity sold was not equal to 1920, in all probability, but there were lots of individual dealers who far exceeded their previous year's record and their conditions were similar to those of dealers who sold few or no tractors—the difference in results was due principally to difference in the men and their methods.

Thousands of tractors will also be sold in 1922, in spite of the fact that many dealers take the attitude that conditions are no better than last year.

ARNOLD P. YERKES

heartedly in the belief that his plan was a good one and could be made to work.

In some cases the dealers who made a good record last year obtained their sales largely from local demonstrations or from demonstrations on the farms of their prospects. There are just as good possibilities along this line for 1922 as ever. This scheme has sold many tractors in the past and will in the future. It has a very strong appeal to any farmer to see a tractor demonstrated right in his own field. For one thing it entirely convinces him that the machine will do his own work, and the confidence of the dealer in

frequently furnished the names of tractor prospects who were visited and later sold largely through the boosting of the tractor, and the service which accompanied it, by the man whose machine had been inspected.

Quite a few tractors were sold in 1921 by sending an invitation to tractor prospects to visit the dealer's place of business to look over a sample machine, and while a well-displayed sample goes a long way toward making a tractor sale, many dealers who complained of poor tractor business last year failed to take advantage of this fact. Frequently no sample machine was available for display, and often when it was available it was kept in a place where it was difficult for a prospect to examine it.

Many so-called sample tractors are displayed in a



Putting the prospect or the prospect's son on the driver's seat has converted many a prospect into a tractor owner.

Without attempting or desiring to prove that the present depression is "psychological," it is nevertheless a fact that the frame of mind of the dealer has a very important bearing upon the sales he will make. It is a well-known fact when we attempt to do anything in a half-hearted manner or believe that it cannot be done we are more likely to fail than when we go at it with full confidence that we can easily accomplish it. This is just as true in selling as any other thing. The first requirement for a successful season, therefore, is the belief on the part of the dealer that the business is there and can be obtained.

Instead of letting his mind dwell upon the dark side of business, such as the low price of farm products, tendency on the part of the farmer not to buy, etc., he should keep clearly in view the fact that there are always exceptions and that some farmers are not only in a frame of mind to buy, but have the money to buy if convinced it is to their interest to do so.

Power of the Demonstration

The dealers who sold tractors last year followed a number of different plans, but each and every one of them, in carrying out his plan, worked whole-

heartedly in the belief that his plan was a good one and put it to work, is bound to have considerable effect upon the prospect's mind.

Some dealers, finding business slow in coming to them last spring, started a thorough canvass of their territory and learned that business could be found by going after it. Such canvassing has been carried on along a number of different lines. Oftentimes the ice was broken by asking a customer to look over his machines while the dealer was on the farm and to find just what repair parts would be needed for the following season. This in itself frequently obtained considerable repair business. It not only paid for the expense of the canvassing, but a good wage to the dealer or his man who did the canvassing. At the same time it furnished a splendid opportunity to find out what new machines the customer needed, and many tractor prospects would be located and sold on the spot or a little later on.

Invite Prospect to Visit Your Store

Frequently dealers visited their tractor owners for the purpose of inspecting the tractor and making any necessary adjustments. Inquiry in these instances

corner or out-of-the-way place which makes it impossible for the prospect to even sit in the seat and put his hands on the wheel. If the dealer realized how much selling value this one thing had with the average customer, he would at least make it easy for the prospect to try out the machine while standing. Examination of the machine itself, however, and sitting in the seat without the engine running, has small effect compared with that of putting the prospect on the driver's seat with engine running and where he can actually operate the machine, especially if it is in the field with the plow or other implement back of it where he can actually handle it while at work. A few minutes of this kind of inspection will create a very strong desire to own a tractor on the part of an average tractor prospect. It shows to him as nothing else can how easy it is to operate the machine, and with many men the fear that they may have difficulty in learning to handle a tractor has quite an influence in keeping them from purchasing. The quickest and easiest way to overcome this is to get them in the seat and let them try it for themselves.

(Continued on Page 14)

If Lundlie Can Do It—You Can

This is the Story of a Saskatchewan Farm Machinery Dealer Who Made Good—He Sold a Larger Volume and Took in More Money in 1921 Than He Did in 1920—Hard Work and Keeping a Close Tab on His Territory Are the Principal Reasons for His Success

PRINCE ALBERT, Saskatchewan, is a thriving town of approximately 8,000 inhabitants. It is situated on the Saskatchewan River almost straight north of Saskatoon. It is a good, ordinary Canadian town but being on the frontier, so to speak, with nothing between it and the North Pole but a vast expanse of North American landscape, it scarcely would be selected as a place to make an easy living.

Surrounding the town is much native "brush"—big trees and little, covering a land where the soil is rich but rather light and sandy. Every acre of this land must be cleared by dint of hard labor before it can be cropped. As one would naturally assume in a country so new, the farms are few and far between. While the trade territory to the north is bounded by the Arctic Circle, the facts are that Prince Albert draws its rural trade from a comparatively sparsely settled country.

There is an implement dealer in Prince Albert—O. M. Lundlie by name. Quite likely there are other implement dealers who might be mentioned but we are interested right now in O. M. Lundlie because of the remarkable showing he has made in his business and also the manner in which he made it. Because he followed some very simple rules that can be adapted by anybody, we are going to tell you about him.

Three years ago, O. M. Lundlie started in the farm implement business in Prince Albert. Before that he had homesteaded near the town and had cleared a piece of land which was so thickly covered with trees that he could not even build a house until he had cleared a space large enough.

He started his implement business with very little capital and under circumstances which were far from propitious. By being a business man and a systematizer, he sold more goods in 1919 than had ever been sold by any single dealer in Prince Albert. He sold more in 1920 than he did in 1919—that was not remarkable. He sold a larger volume and took in more money in 1921 than he did in 1920, which we contend is remarkable.

In a year when business generally slumped badly and big companies, as well as little ones, were working desperately to keep heads above water, "O. M." was out doing the biggest business in his career. There was no fluke about it either. 1920 was a good year but 1921 was a better one for one reason only—hard and intelligent work. He worked that part of his anatomy above his collar more than that part below.

Industriousness is a commendable virtue in anybody, but hard work alone without the assistance of a keen commercial sense will not get a man very far up the ladder of success. Efforts are just efforts but they must be well directed to become results.

Checks Up His Own Territory Closely

Lundlie owes most of his remarkable success to a careful and constantly corrected analysis of his trade territory. He keeps a card index showing every farmer who resides within trading distance of town. On these cards, he shows full information concerning the man, his land holdings, financial rating, credit, the number of horses, cattle, pigs, chickens and other stock he owns, the farm machines he has, together with their age and general condition. He also keeps track of the machines the man has not and the machines he may be considered a prospect for. Of course, these facts change from time to time, and Lundlie makes the necessary changes to keep his cards up-to-date. He can do this because

By R. S. WILLIAMS

he is constantly driving around the country.

"There Goes Lundlie"

Lundlie and his car are one of the most frequent sights to be encountered on the roads leading out from Prince Albert. There is never any doubt as to when you see him, even though you are not close enough to recognize his features because he has a transparent sign on the back of his car which can be read in the dark or daylight with this inscription, "There goes Lundlie."

clean, light sample room in which he displays seasonable machines. There is always a fire going in winter so that when a farmer gets into a town after a five or ten mile drive, he knows where he can get warm. Lundlie makes it pleasant for everybody and, naturally, he gets the trade.

Looks After Own Tractor Service and Repairs

When he sells a tractor or a thresher, he never asks for expert assistance to make minor adjustments or repairs. In fact, the manufacturer who sells him most of his goods declares that when a big machine goes into Lundlie's territory, it is never heard from again. In this way, he prevents many

delays that otherwise would be unavoidable if he were compelled to call for assistance from headquarters.

His repair stock is complete and well arranged. He is prepared to supply almost any common part from his own stock. He handles his repair parts systematically and has them so placed that he can find anything he wants quickly or can invoice them accurately. Naturally, his repair business nets him a substantial profit.

That is the story of O. M. Lundlie, a dealer who is making good, who increased his business in 1921 over 1920. There was nothing unusual, remarkable or supernatural about it—just good business sense plus hard work.

You can accomplish the same results on your own territory by putting the same degree of intelligent and enthusiastic effort into the promotion of your line.

We know that business will not come easily. It will have to be gone after with intelligence and industry. The dealer who is willing to couple these two virtues need not fear the result.

NAME _____ R. R. _____	
POST OFFICE _____ PROVINCE _____	
PROSPECT FOR _____	
DATE WE CALLED _____ DATE HE CALLED _____	
OWNER _____ RENTER _____ RATING _____	
LIVES _____	MILES NORTH _____ MILES EAST _____ MILES SOUTH _____ MILES WEST _____
KEEPS _____ HORSES _____ CATTLE _____ HOGS _____ SHEEP _____ MILKS _____ COWS _____	
FARMS _____ ACRES _____ WHEAT _____ OATS _____ RYE _____ HAY _____ CORN _____	

Lundlie keeps an analysis of his territory by a card similar to this one. You will notice it gives full information about the kind of work the farmer does, the kind of stock he keeps and his financial rating.

When O. M. wants to canvass the country—and that is almost every decent day—he goes to his cards and selects a likely list of prospects. He knows what he is doing before he starts out to do it, and that is more than the average canvassing dealer can say. He indulges in no lost motion. When he drives the country he is always going somewhere. When he drives in to see his prospect, he talks business and he talks stock, crops, fertilizer, seed, and belt speeds. He is by way of being a considerable authority on questions affecting his community. While he is calling on a farmer, he sells him a machine, if possible, but whether he does or not, he gathers a new grist of information for his card index. Perhaps he learns that the farmer's neighbor is thinking about buying a new grain drill—he jots it down. If you were a Prince Albert farmer and were talking to Lundlie, you could make up your mind that you were being interviewed and that your remarks were all going down in black and white.

Lundlie knows his farm trade as a shepherd knows his flock. He could tell you just about which men are going to buy grain drills this spring and which ones are going to buy plows—but he doesn't tell it, he acts on it.

In fact, knowledge is something Lundlie must have. He makes it his business to get accurate knowledge of whatever will affect his business. When he was first starting in at Prince Albert and had contracted for his line of equipment, he made a trip to Saskatoon and spent two days at the branch house of the company with which he had connected. He picked up all the points he could about selling and advertising and went back to Prince Albert fully equipped to take on all comers and he has been doing it ever since with increasingly satisfactory results.

He believes in good samples, so he keeps up a

New Franklin Car to Sell for \$1,000 in the States

A \$1,000 CAR is to be put on the market by the Franklin Automobile Company, Syracuse, it was announced recently by H. H. Franklin at a meeting of eastern Franklin dealers. A chassis of the new car was exhibited privately on this occasion.

The car has a four-cylinder, air-cooled engine, weighs 1,800 pounds and is of five-passenger size.

Production will commence early in 1923, the actual date depending upon completion of patterns, tools and the securing of machinery. Quantity deliveries are in prospect by April, 1923, at which time output will be nearing the 100 car per day mark.

The new car was developed in 1918 and 1919 and was to have been produced in 1920 but was postponed when business depression hit the country. Franklin officials anticipate that the new car will come on the market at a time when general conditions will be most favorable for volume sale.

The outstanding features of the car, aside from its low price, will be its easy riding and handling, road-ability, gasoline and tire economy and the air-cooling system. It will be a "world-wide utility car," Mr. Franklin states.

Besides the \$1,000 touring car, a sedan is also to be produced, price of which, although not yet fixed, will be equally low.

Merchandising of the \$1,000 car will extend to world markets and will mean considerable expansion of dealerships in this country, the meeting disclosed.



This Calgary Dealer

Has Weekly Sales and Service Meetings

Problems Are Discussed Frankly at Weekly Conferences—Service Comes First—New Garage With Capacity of Eighty-five Cars—Aim to Get Volume Through Advertising and Service

"WE THINK OUR success is due mainly to applying the Golden Rule in our business and to a keen desire to be of the utmost service to our customers at all times. We spare no expense in trying to be efficient, inasmuch as we have installed the best equipment and most modern system in working out different departments. We have regular sales meetings weekly as well as service meetings and by getting each department together regularly, we are able to discuss our problems frankly as they arise."

In this manner Ernest A. McCullough, president of Maclin Motors, of Calgary, Alberta, summarizes in a letter to M. T. I. the main points which helped his firm on the road to success. That the rules laid down for the guiding policy of Maclin Motors were sound, is evidenced by the fact that in a difficult year like 1921, when the automotive industry as a whole suffered severe losses, this firm was able, not only to hold its own, but to do sufficient business to justify the erection of a fine new modern garage, said to be one of the finest in Calgary.

The entire front of this new garage is a series of three sections of plate-glass windows, which front respectively, accessory department, showroom and administrative offices. The floors of all of these departments are finished in polished hardwood, and covered, in places where most walking is done, by rubber mats.

The comfort and convenience of customers has been carefully attended to. Wicker chairs arranged in a sort of cosy corner and plenty of magazines and papers will make the time pass comfortably and profitably for the waiting patrons.

The administrative offices are very complete and fitted up with the latest office furniture and equipment. Specially constructed closets are used for keeping the office files. There are also individual offices for the sales manager, salesmen and service manager. These special offices are situated around the showroom.

The Repair Shop Layout

The main automobile entrance to the garage and repair shop is situated between the showroom and the accessory department. One entrance and three exits are provided for cars. Two exits are on the west side of the building and one on the south side. This arrangement of exits has been devised to facilitate work and avoid confusion.

On the left of the main car entrance is the oil room, enclosed from view and constructed specially

to conform to the general atmosphere of order and cleanliness.

The automotive equipment and spare parts department is of particular interest. The bin system of storing parts is used throughout. The bins are arranged so that the parts most frequently called for are nearest to hand. Special hangers are provided for frames, etc. The larger and more unsightly parts are stored away out of sight yet within easy reach. This department is in the northeast corner of the building just back of the oil room.

The repair shop is at the back and runs the full length of the building. The equipment consists of a lathe, running-in and burning-in machine, straightening press, cylinder reboring and regrinding outfit, drill press, magneto testing outfit, battery recharger, transmission and reaming outfit, rear axle stand, air compressor, caustic soda bath, etc.

Cars for repairs are driven along the left side of the building into a special parking place where they are lined up facing the wall with sufficient space all round for the operator to get in and out easily. The ceilings of the repair shop are high and the maximum amount of daylight is secured by a fine arrangement of windows.

Located conveniently in the repair shop is a series of cupboards where spare parts are stored for the convenience of mechanics working at night, and at times when the regular stock room is closed. A tank of 1,000 cubic foot capacity supplies air to all parts of the building. Rubber air tubes are hung at convenient points.

The building is at present one story, but provision has been made so that a second story can be added at any time. Accommodation is provided for eighty-five cars. When the second story is added there will be a total capacity of 160 cars. The entire staff of Maclin Motors is about twenty-five men.

The Maclin Motors specialize in Ford cars. The firm was started in 1917. The name "Maclin" is derived from the names of the two original owners of the firm, E. A. McCullough and T. W. Lines.

Do Extensive Advertising

"We aim to get business volume and to that end we do extensive advertising and keep our departments on the aggressive all the time," said Mr. McCullough.

"Besides our new car business we do quite a large used-car business. These cars are carefully bought and thoroughly gone over. Not until they are completely overhauled and put into usable shape are they offered for sale. When our O. K. is put on a used car we can with confidence place it before the public and the public have come to recognize their reliability. We use the flat-rate system of charging for repairs and have found it satisfactory from every standpoint. From the customer's point of view it is of particular value to know what a certain repair is going to cost before the work is commenced."



ERNEST A. McCULLOUGH,
President, Maclin Motors.

Ontario Automotive Dealers Discuss Trade Problems at Annual Convention

The Tire Situation, Used Car Problem and Service Come in for Lively Discussion—"Ask 'Em to Buy" Film Shown to Enthusiastic Assembly—Convention of the Opinion Dealers Themselves to Blame for Much That is Bad in Automobile Situation

ONE OF THE best conventions ever held by the Ontario Automotive Dealers' Section of the Retail Merchants' Association took place on February 1-2 at the Prince George Hotel, Toronto. More than a hundred dealers from all over Ontario assembled at the various sessions. Some of the liveliest discussions took place on the Tire Situation, the Used Car Problem and Service. A large percentage of the members took part in the discussions, which at times almost assumed the aspect of debates.

J. J. Duffus, president of the Ontario Retail Automotive Dealers' Section, presided at the sessions. In his opening remarks and address of welcome to the delegates, Mr. Duffus expressed the conviction that the automotive industry, in spite of the depression during the last year, is a live business and one that is here to stay.

Short addresses of welcome were given by H. Moore, president of the Toronto A.R.A., B. W. Zieman, ex-president of the Retail Merchants Association, of Ontario, and J. R. Marlow, of the Willys-Overland. Mr. Marlow urged confidence in the future of the industry. "You have every reason to be confident in the future of this business; it has come into the community life in a way that makes it impossible for it ever to disappear. It will be as useful and essential ten years from now as it is to-day." "Co-operation," he said, "is the essential element of success." He urged dealers to build up their businesses with this idea in mind. If the dealers through co-operation engendered confidence among themselves," he said, "this confidence in turn would be passed on to the public."

The Tire Situation

The first subject to be discussed in detail was the present tire situation. A representative of one of the tire manufacturers said that some manufacturers were trying to milk the cow at both ends. There are two hundred commercial accounts in Toronto alone to which some of the manufacturers are selling direct at dealers' prices. He was of the opinion that the manufacturers should find distribution through the tire and automobile trade and through no one else.

One Toronto dealer objected to the policy of certain tire companies of selling their whole output of "seconds" to certain large distributors and thus making it impossible for the smaller dealer to get a portion of such trade. Objection to this was taken by other dealers present on the ground that a business in "seconds" was not desirable and that the trade should do everything in its power to discourage it in the interests of business in first quality tires only. They were of the opinion that the manufacturers would be well advised to destroy all "seconds" in the factory and this would add very little to the cost of the first grade tires and give much better satisfaction among users. On it being pointed out that while other dealers sold "seconds," the customer would insist on going to them for such tires, it was the opinion of several dealers that in such cases a customer was not lost, but that a friend was gained inasmuch as the merchant's desire to sell only first grade tires would later be appreciated by that customer when experience had been had with "seconds."

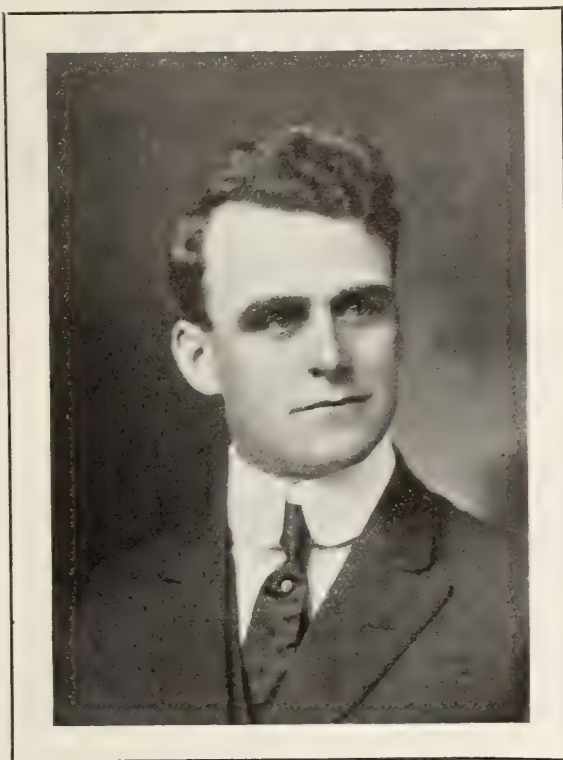
"The 'second' tire market is rotten, but we cannot do anything unless the tire companies try to clear the market of these lines," said G. Grainger, Toronto, pointing out that tires are down in price again and there is less excuse now for selling "seconds." This dealer also deprecated the practice of some manufacturers selling to commercial accounts.

"In my section of the city there is no tire market for the dealer," said Mr. Grainger, "and the only way to sell a tire is to put big pressure on the air pump and blow up an occasional one."

Margin Too Small

Contending that the present margin of profit on tires was not sufficient, S. H. Rowed, of London, Ont., ex-president of the association said: "You can get 30, 35, and 40 per cent. on automotive equip-

ment, but on tires you get only approximately 20 per cent., and generally the service of putting on the tire must be given free of charge. Nevertheless I believe the tire companies are sincere in their efforts to maintain prices, but unfortunately some of them have a very poor check on their dealers, who are cutting prices." Mr. Rowed mentioned the case of



J. J. DUFFUS,
Re-elected President Ontario Automotive
Dealers' Association.

one rubber manufacturer who lost the mechanical goods business of a London firm because the manufacturer would not cut prices on tires to them. "Unfortunately," said Mr. Rowed, "other manufacturers stepped in and sold the firm goods at dealer's prices."

"Some firms who are supposed to buy tires at

"YOU HAVE every reason to be confident in the future of this business; it has come into the community life in a way that makes it impossible ever to disappear. If dealers through co-operation engender confidence among themselves, this confidence in them will be passed on to the public."—J. R. Marlow at Ontario Automotive Dealers' Convention.

wholesale prices on a ten car basis are buying tires on a three or four car basis," said Mr. Rowed.

Mr. Grainger said that some manufacturers were trying to do the right thing by the dealer and had cut out all commercial accounts.

Dealers Not Free From Blame

Claude Pearce, Toronto, referred to the big investment in plant and equipment made by the tire manufacturers and thought they were really endeavoring to market their product through the legitimate dealer. "The fault lies with the dealers themselves," said Mr. Pearce. "In the past five years I have

listened to many manufacturers who have told us that they are behind the association but unfortunately the association cannot always say the same thing about its own members. There are 150,000 to 200,000 automobiles in the provinces of Ontario alone, which would ordinarily use four tires a year, making approximately a million tires annually. What percentage of that business are the dealers getting? We are not foolish enough to believe the tire companies are selling that product without profit and that the dealers who sold the tires were working on a losing proposition.

"When a customer asks you for 10 per cent. of the 20 per cent. which you get and you give it to him, you yourself are starting the whole trouble of which you complain. We should clean our own house first and the tire companies will then take action. If we can guarantee not to cut the prices on tires we will have no trouble."

J. J. Duffus, president of the Association, concurred in the sentiments expressed by Mr. Pearce, pointing out that there was a desire on the part of the manufacturers to cut out commercial accounts and deal exclusively with legitimate dealers.

Some Improvement in Situation

"There are 1,400 automotive and tire dealers in Ontario," said Mr. Duffus, "and if we had the opinion of that body of men we would soon have the manufacturers take action. The tire situation is improving. Another year like the last one and dealers would not care who the manufacturers sold. The margin on tires was reduced to 15 per cent. and there was no profit to be made. One of the reasons for cutting the margin of profit was in order that dealers would refrain from the policy of constantly cutting prices."

The general impression of the meeting in regard to the tire situation was that the dealers themselves can do a lot to improve matters. Price cutting by dealers was considered as being, perhaps, one of the greatest factors in creating the present situation. If the dealers stood by each other and sold at the list price the situation would be considerably improved.

A committee was formed consisting of Messrs. S. H. Rowed, London, G. Grainger, Toronto, C. Pearce, Toronto, Mr. McGraw, Brantford, and J. J. Duffus, Peterboro, to go fully into the situation and interview the tire manufacturers with a view to having some changes of policy made and a definition given of "legitimate" dealers.

J. J. Duffus led the discussion on the subject, "The Cost of Doing Business." He said that the essential feature to be taken into consideration in connection with any business is to keep overhead and cost of doing business lower than the volume of business done. If there is no profit in business there can be no pleasure and where there is no pleasure, one had better be out of business. Every dealer is entitled to a legitimate profit on business done and also to interest on his investment. Before a dealer can know whether his business is paying or not he must adopt some adequate business system. The speaker also emphasized the necessity of marking down stocks to replacement values.

Dealers Must Have System

J. R. Marlow, of Willys-Overland, said it was astounding how many dealers are operating without a proper system. Generally speaking a too slipshod method of keeping accounts prevails. The time has passed, the speaker said, when automobile dealers could be any less careful than merchants in other lines, with respect to the thoroughness with which they conducted their business. He said many dealers had not enough system about their businesses to enable them to make out an intelligent financial statement. Mr. Marlow agreed with Mr. Duffus that stocks must be marked down to replacement values. "Unless this is done," he said, "there can be no real resumption of business." Mr. Marlow warned the assembly that 1922 would be a testing year and only those who adopted proper business methods could with any assurance hope to succeed.

(Continued on page 23)

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WHERE DOES RESPONSIBILITY END?

IN THE AUTOMOTIVE and power farming industries the responsibility of the manufacturer and the dealer to the customer is, broadly speaking, twofold—they must supply machines and parts of worth and see that they perform the function for which they were designed and sold.

We need hardly enlarge on the first point, for as a general rule the goods offered by the automotive and farm machinery industries have proved their worth, and are now fairly well standardized as to quality.

The second point, that of keeping the machines working, brings in the much discussed service problem. Automobiles, tractors and farm machinery, by reason of their very nature, require more or less servicing from time to time, if the maximum of service is to be got from them. Who should provide this or that service, what service should be paid for and what given free, are points which are continually cropping up between the manufacturer, the dealer and the customer.

There is no question as to who should perform the service. This is the function of the dealer who sells the goods. It is his responsibility. He is bound to keep his machines in running condition. Future sales depend on his satisfying present customers. But who should pay for this service? There's the rub.

Service can no longer be confused with free repair work. The dealer is entitled to remuneration for practically every bit of service he performs.

In the case of farm machinery the machines should be set up and the owner instructed in their operation free of charge, but after that all service should be paid for except that caused through defective material or workmanship.

Practically the same conditions apply to the automobile industry. After a car has been delivered and the customer instructed in its operation the dealer's responsibility should cease except in the case of defective material or workmanship.

The manufacturer should pay for all service caused through defective material or workmanship, the customer should pay for all other service.

After so much has been said, one would suppose the matter ends. Unfortunately that is not the case. There are about as many systems of taking care of service as there are dealers. From various causes, customers have learned to expect a great deal more service for nothing than they are legitimately entitled to. Manufacturers and dealers are in a great measure to blame for this state of affairs. They have pampered and coaxed along the customer until no one seems to have a clear conception of what should be charged for and what should be considered as free service.

The time has come for dealers to put an end to the present chaotic situation. It is in their power. They can't give something for nothing and remain in business.

It is not suggested that exorbitant prices be demanded, but a fair charge should be put on all service except where defective workmanship or material are concerned. Is there any reason under the sun why the automobile dealer should provide free air? He has to pay for his machinery to supply that air, why should he not sell it at cost? The farm machinery dealer has to buy the gasoline he consumes in travel-

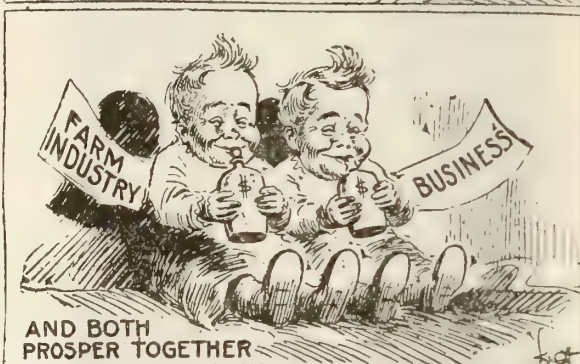
ing out to a farm to fix a sick tractor or binder, isn't his gasoline and time worth something?

This year will be another testing period for the automotive and farm machinery dealer, according to all the signs. It is a good time to put down this free service bugaboo.

Let's start to do it, not next week or next month, but now. Let your motto be: **No free service except on Defective Parts.**

SALES AND SERVICE

SALES PSYCHOLOGY must be projected into service. We have no right to make a man wait two hours for his bill after his car is ready for delivery, says a General Motors official. And when he pays this bill the man who takes the money



The Well-Known Siamese Twins.
—Knott in Dallas News.

should have enough sense to say "thank you." Even if the remittance is by mail the bill is not properly receipted until the words "thank you" are written across its face in longhand. When winter approaches it is the dealer's duty to warn his owners and offer his services in the matter of putting anti-freeze solution in their radiators and light oil in their motors, etc. And in the spring it is his business to look after changing back for warm weather operation.

A strict observance of office hours should be taboo in any automobile repair shop. The biggest

volume of sales on minor repair parts and accessories are made and the greatest good will is built between 5 p.m. and 9 a.m., and during the noon hour and on holidays.

If we expect to continue doing business with the big market, represented by salaried employees, we must prepare to serve him, as and when he wants to be served.

Efficient service will eliminate the saturation point—it will remedy the pirate parts evil, and it will do more than anything else toward stimulating the used car market.

We must sell service first and motor vehicles second. No matter how perfect the design and workmanship of so intricate a product as a motor vehicle, it cannot and will not stand up and give a satisfactory account of itself unless it is kept in first-class condition through systematic inspection, adjustment and parts replacements. And by the same token, even a second rate vehicle can be kept going beyond its normal life if it is properly serviced.

The new era is bringing with it new standards and right today the car owner and the prospective car owner are comparing our service with the service of the department store, the drug store, the jewelry store, the restaurant and other well-regulated institutions.

"LET THERE BE LIGHT"

GOOD ILLUMINATION will increase the efficiency of the mechanics in your shop, says the Motor World, in an editorial. Production will be increased, losses resulting from spoiled work will be reduced, there will be fewer accidents, and the morale of the men will be improved.

With proper lighting they can work faster and more surely than if they are hampered by inability to see well due to lack of, or misapplication of light. And they will be able to maintain their production rate for a longer time than if eye strain is added to the other things which tire them out. They can do their work accurately and carefully because they can see what they are doing and, when the job is done, they can check it up to see that it is right. Comebacks will be reduced.

Accidents, which result in both delay and expense, will be reduced because the mechanic can use his vision to guide his movements instead of depending almost entirely on his sense of touch, as is necessary under improper lighting conditions. A smashed finger may have seemed to you to be just hard luck for the workman, but it means added expense for you because it interferes with and delays his work.

Satisfaction among your employees will be increased because they will work with less fatigue. They will be healthier and happier. And this improved physical condition will be reflected in both the quantity and the quality of their work.

Proper illumination will pay profits in any shop. Usually it doesn't cost any more than poor lighting, and frequently it costs less.

THOSE WHO WILL SUCCEED

TAKING everything into consideration 1922 will reward the workers. The period of rumors and wild alarms seems to have passed. Those dealers who bring their business into line to meet prevailing conditions, who are careful in extending credit, who consider the customer first in all their dealings, and who give the best value and the greatest service will be the ones who will be favored in 1922. Start to sell now. Put your service right, now. Show the buyer you have something to sell which will reduce his costs, save his time, increase his comfort and earning power, and you will have no reason to be unduly pessimistic at the results when 1922 draws to a close. Start Now.

THE USED CAR

THE USED CAR problem got an airing at the Ontario Automotive Dealers' Convention held at Toronto and reported elsewhere in this issue. After considerable discussion it was the general feeling that the situation can be relieved a great deal by the dealers themselves. As J. R. Marlow, of Willys Overland, pointed out, it is all a question of right buying. If the dealer buys a used car at a figure which will enable him to put it into usable shape and sell at a bargain there should be no great difficulty. A used car must be sold at a bargain and the customer should be aware that he is buying something at a bargain. And buying something that will give him satisfaction and that he can be proud of.

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Cars at the London Motor Show Reveal Trend to Quality and Comfort

LONDON, ONT.—Excellent in every detail as was the motor show of last year, it was completely eclipsed by the show held in the Armories here from February 6 to 11. The exhibition was easily the best ever held in Western Ontario and attracted between 10,000 and 12,000 visitors, many of whom motored in all the way from 25 to 60 miles and stayed for several days.

The big Armories was none too commodious for the numerous automobiles and accessories that were shown. The main section of the floor was given over to the cars while all of one side and one end was filled completely with exhibits of auto accessories and specialties.

Features of the Show

A glance over the exhibits was sufficient to show that the manufacturers this season are centering their big guns on quality and luxury. Practically every car on exhibition was a model of good taste, extremes being conspicuous by their absence. Apparently the day of freak colors is passing, as the great majority of the models were finished in black or blue. Disc wheels are apparently more popular than ever, and another feature noticed even in the more moderate priced cars is the effort made to satisfy the demands of the public for an easy riding car. Without exception the cars at the show were good lookers, some of course better than others, but all presenting a most attractive appearance.

That people will buy a good looking, attractive car without any abnormal amount of sales talk or sales effort was shown by the really splendid business done at the show. A great number of the visitors both from London and also from the district were obviously looking for something better than they were driving. Farmers who have been driving all sorts and conditions of "bus es" motored in with the idea of trading in their small cars and getting something not only bigger but something that would ride easier and embodied better equipment and the latest improvements. With most of these men it was not a question of \$100 or \$500. What they wanted was a quality car and when they saw the show they were more than satisfied. It was a treat to the dealers and manufacturers' representatives to see the interest taken by these visitors and the intelligent questions they asked about the improvements on the new models. It was still more of a treat to the dealers when sale after sale was made.

By M. T. I. Correspondent

"We are indeed well satisfied with both the show and the results obtained" said President Wilfred Hodgins in discussing the exhibition with Canadian Motor, Tractor and Implement Journal. "The manufacturers could not have hit the nail on the head better if they tried. People are demanding quality cars and the entries at the show 'fulfilled their expectations in every way. The visitors showed the keenest interest and were more than pleased with this year's models. The cars on exhibition here showed that the manufacturers have gauged public opinion to a 'T' by making quality their big aim.

Prices Now Stabilized

"I believe that prices are now down to rock bottom and that everyone is safe in buying. This is an important matter and the fact that we were able to give people reasonable assurance regarding prices was a big factor in helping us to do the splendid business that we did. I think all the exhibitors are more than satisfied and the opinion has been everywhere expressed that this year's show was easily the best we have ever held. We will plan even bigger and better thing for next year".

Business Improvement

Mr. Hodgins declared that business conditions in London district have been unusually good. Sales for January with several firms, he stated, had proved record breakers, and already there was trouble in getting deliveries.

"There has been a really big business in both new and second hand cars," said Mr. Hodgins, "Many of those who have been driving various small cars and are perfectly 'sold' on the utility and economy of the auto are trading in their cars for larger ones. I think I am not exaggerating in any way when I say that there is a general tendency toward buying larger cars, both by former owners and by new prospects. The general public is undoubtedly demanding quality and easy riding and the firms who showed here this year cashed in splendidly, as their exhibits embodied just the ideals for which the people were looking."

On the opening evening of the big show a banquet was held and the show formally opened by Frank White, M. P., of London, a keen auto enthusiast. Among the speakers were President Wilfred Hodgins, Hugh A. Stevenson, M. L. A. for London; Bert Kane, 1st Vice-president of the London Automotive Retailers, Association; W. W. Ferguson, 2nd Vice-president; Mayor J. Cameron Wilson; Ex-Mayor E. S. Kittle; Frank McLachlin, secretary of the association, and S. H. Rowed, past president.

One of the most interesting features of the speeches of the men in the trade was the spirit of optimism shown regarding the business outlook. It was frankly admitted that the auto industry had been one of the first to feel the effects of the depression but it was the unanimous prediction that it would be one of the first to recover and that the coming months will see brisk and steady buying. No one looked for the wild buying that prevailed at one time, but for steady legitimate business and plenty of it. The view was taken that the auto today is recognized as never before as a source of comfort, convenience and utility and that people are thoroughly "sold" on the value of cars.

"Ask 'Em To Buy"

The "Ask 'Em To Buy" slogan is being adopted by the London Automotive Retailers' Association and the special film that was shown in Toronto was shown to the local dealers at a special meeting after the show closed.

In connection with this, several of the auto accessory representatives, and also the car dealers stated that they are planning to link up with their distributors in their local advertising and put on an active campaign. This it is believed will produce direct and immediate results.

Avoiding Novelties

In connection with the auto accessory displays, special interest was shown by the visitors in pressure lubricating systems and lighting equipment and batteries. There were some splendid exhibits of these lines and the representatives of the various firms stated that they were well pleased with the attendance at the show and interest taken in their displays. A feature of this year's exhibits was the absence of novelties. Apparently those showing have adopted the policy of keeping to standard lines for which there is a proven demand.

Alexander MacKenzie Is Promoted

ALEXANDER MacKenzie has been appointed general sales manager, Canadian National Carbon Co., Ltd., and Prest-O-Lite Co., of Canada, Ltd.

Mr. MacKenzie joined the staff of the Prest-O-Lite Company in 1917. After some months in the head office in Toronto, he took charge of the Montreal

office and service station of the Prest-O-Lite Company and built up a branch business in Quebec. On August 1st, 1920, Mr. MacKenzie was made sales manager of Canadian National Carbon Co., Ltd. His work for this company earned for him the promotion to general sales manager of both companies.

C. F. Welch, who for the past year has been acting as Ontario sales manager for the Canadian National Carbon Co., has been appointed Ontario sales manager for the Canadian National Carbon Co., and Prest-O-Lite Company of Canada.

International Reduces Tractor Prices

EFFECTIVE February 6 the retail prices of International tractors will be as follows: New prices, f. o. b. the following branch house points:

	Titan	International
	10-20	8-16
Hamilton; London; Ottawa, Ontario	\$825	\$775
Montreal; Quebec, Que	845	785
St. John, N.B.	860	795

Prices include friction clutch pulley, fenders, platform, throttle-governor, adjustable draw-bar, angle lugs and brakes.

These new prices show a reduction \$325 on the former price of the International 8-16 and \$300 on the former price of the Titan 10-20.

The company also has made the following special offer to apply on all new Titan 10-20 and International 8-16 tractors purchased and delivered on or before May 1st, 1922. Each farmer purchasing a Titan tractor for delivery on or before May 1st, 1922, will be given by the company, absolutely free, f. o. b. Hamilton, Canada, a regular three furrow tractor plow. The purchaser of an International 8-16 will be given on these same terms, a two furrow tractor

plow. If the purchaser now owns a suitable plow, the company will furnish instead a tractor disk harrow.

As President Harold F. McCormick said, "This reduction is not justified on any present or prospective reduction of manufacturing costs. It is made chiefly to meet competition and enable our dealers to retain their position in the tractor trade. The burden of this reduction and the cost of the plows or harrows present to purchasers will be borne entirely by the company."



ALEXANDER MACKENZIE
Appointed General Sales Manager Canadian National Carbon and Prest-O-Lite Company, of Canada.



C. F. WELCH
Appointed Ontario Sales Manager of Canadian National Carbon and Prest-O-Lite Co. of Canada.

Points on the High Tension Magneto for the Service Man

How the Magneto Makes the Spark—Various Forms of Magnetos In Use—Variations In Armature and Rotor Design—Principles of Design, Construction and Operation

By L. G. HEIMPEL, B.S.A.

THE High Tension Magneto is the most desirable ignition device on internal combustion engines. Not that we wish to speak disparagingly of the multitude of good working battery ignition systems in use on many automobiles. They have their place; yet, we believe that there is not an engineer who would not gladly drop storage battery ignition, were it not necessary to maintain a generator and battery for lighting purposes. For the farm tractor the High Tension Magneto is the universal source of spark. In its present state of development it is probably the most reliable unit of the tractor. Having few working parts none of which are exposed to dirt; having no exposed wiring, but the leads to the spark plugs, with high class construction and material, and of designs such as to embody in them the last drop of efficiency in mechanical production of electric current; this device can well be classed as one of the marvels of the age.

In no sphere of the gas engine's usefulness does this engine meet with such hard usage as in the farm tractor. On the prairie, pulling five or six breaker bottoms with a 30-60, pulling seven wagons with a hundred and ten bushels of flax on each, pulling a "whole raft" of disc-harrows in dry soil on a windy day so that the whole engine became covered with an oily mud almost half an inch

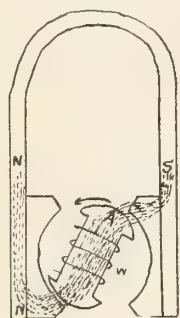


Fig. I.

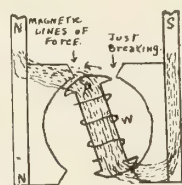


Fig. II.

thick, we have seen all kind of engine trouble. We have found oil pipes plugged with dirt and burnt out bearings as a result, in spite of vigilance of a most rigid nature. Have seen engine cylinders literally ground to death in a season in sandy soil before the days of the airwasher; have had to grind valves, adjust tappets and repair and clean lubrication systems without end; but the magneto seldom needed any attention. True, if all other engine parts gave no more trouble than the magneto, the horse as a source of farm power would be a real "has-been."

Yet while magnetos are reliable, the operator and repair man should know how they work. They should know how they are made; should know how to test them; and above all they should be thoroughly familiar with what repairs the average man can perform and what parts he had better leave alone.

How a High Tension Magneto Makes the Spark

It is not our purpose to go deeply into the design of magnetos from the designer's or manufacturer's end, but we do wish to know enough about the principle of opera-

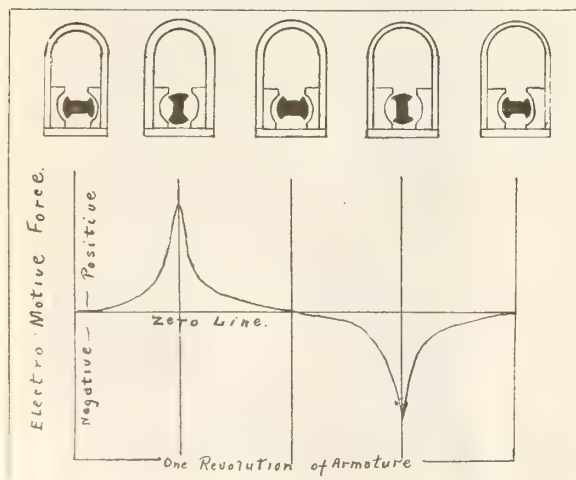


Fig. III.

tion, design and construction, to be able to form a reasonably correct diagnosis of troubles in our repair shops.

The operation of a high tension magneto is based on three well known facts concerning electric current.

- (1) When a magnetized bar is thrust through a coil of wire, an electric current is set in motion in the coil. The same is true when the coil of wire is rotated between the poles of a permanent or horse-shoe magnet.
- (2) When a low-tension current flowing through the primary winding of an induction coil is suddenly interrupted, an induced current of high tension, (voltage) is produced in the secondary winding of the coil. (The

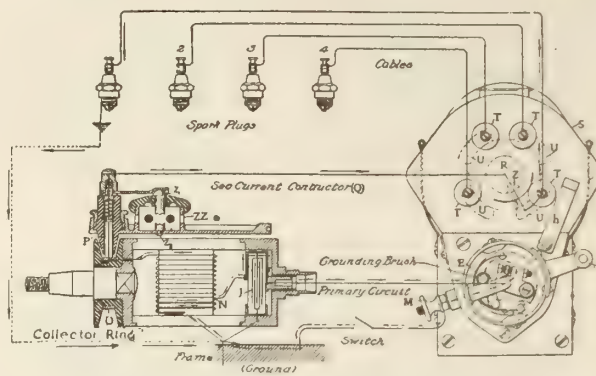


Fig. IV.

operation of this coil was taken up in the article on battery ignition).

- (3) There can be no high tension current induced except at the instant the primary circuit is broken.

In the induction coils used for all battery ignition systems, the low tension current, flowing through the primary winding, is drawn from the battery. The high tension magneto operates in the same way as an ordinary high-tension coil, only that the primary current is made by mechanical means.

In Fig. I is shown a horseshoe magnet with the cross section of an armature revolving anti-clockwise. Around the ends or poles of all permanent magnets are fields of magnetic force. The magnetic lines of force composing these fields always travel from the North to the South pole, through the nearest path. An armature or other metallic substance is placed between the poles, then this armature becomes a path for these lines.

In Fig. I these lines are passing from the North to the South Pole through the iron body of the armature—not through the wire of the armature. In Fig. II the armature has been turned partly around, and the flow of magnetic force flows through the armature in the opposite direction. Just at the moment when this reversal of magnetic travel through the armature takes place, an electric current is generated in the primary winding of the armature.

If the primary circuit is broken at the instant when this electrical flow is strongest then a high tension current is induced in the secondary or high tension winding of the armature, which causes a spark at the plugs.

The flow of current produced by the magneto armature is not a steady or direct current, but is an alternating current, which is produced in waves. This is illustrated in Fig. III; it will be seen that when the armature is in a horizontal position there is no current flowing or current strength will be at the zero line. When the armature is turned from the horizontal to the vertical position or through ninety degrees, the peak of intensity is reached, but only for an instant, as will be seen by the drawing. There are two waves of current for each revolution of the armature, one of positive polarity, the other negative. This is true of all magnetos with two-pole armatures.

Variations in Armature and Rotor Design

The most common form of magneto in use is the one illustrated in Figs. I and II, consisting of an armature core of laminated iron of a spool shaped cross-section, shown in Figs. I and II. Around the armature is wound the primary winding of comparatively heavy wire, then the layer of very fine wire composing the secondary winding of the armature. One end of the primary winding is grounded on the metal as is shown in Fig. IV, while the other goes to the insulated terminal or breaker block in the circuit breaker. The secondary winding is also grounded at one end, and the circuit can be traced from the armature to the

collecting ring, Fig. IV, then to the distributor, to the plugs and back to the metal of the engine.

The features peculiar to the revolving armature type are as follows:-

- (1) A number of permanent magnets—usually two or three, set end to end, on a non-magnetic foundation or base.
- (2) An armature mounted on a shaft running longitudinally between the poles of the magnets and revolving between the magnetic poles so that the direction of magnetic flux through the armature is reversed twice for each revolution of the shaft, see Figs. I and II.
- (3) A Breaker-box containing a circuit breaker actuated by the armature shaft.
- (4) A distributor through which the high tension current is distributed to the plugs in proper sequence.

Magnetos using this form of armature are the Bosch, Eiseman, Mea and others.

The Inductor Type

In this type of magneto there are practically all the parts present in the armature type above. The coil, primary and secondary windings, are mounted so that the shaft passes through them but the coil does not revolve with the armature shaft. The shaft carries two wings or rotors, Fig. V, which rotate close to the coil and which are subject to reversals of magnetic flux similar to those shown in Fig. IV. As these rotors revolve past the

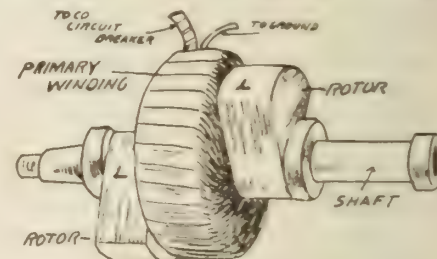


Fig. V.

Inductor Type of Armature.

stationary coil, waves of alternating current are generated in the coils. The type illustrated in Fig. V, The Remy Magneto, has a two wing rotor and causes therefore two impulses or waves of current per revolution of the armature shaft.

Another magneto of this type is the K. W. Fig. VI. On the shaft of this type are two double-winged rotors, set at right angles to each other. Each of these rotors is subject to two reversals of magnetic flux and generates two waves of current in the coil. Since they are set at right angles it is plain that this magneto produces four waves of current for each revolution of the rotor shaft.

The peculiar features of this type of magneto are:-

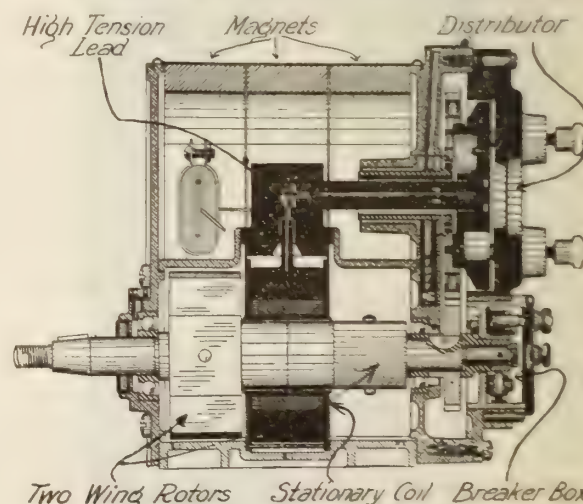


Fig. VI.

On the skirt of this type magnet are two double winged rotors set at right angles to each other.

stationary coil, hence no sliding contact, or collecting rings necessary, except in the distribution of high tension current.

To be Continued

Stop Guessing at Your Costs— You Can Know—Here's How

This Story Outlines a Complete System of Accounting Which is in Operation in Willys-Overland Service Station in New York—It is Comprehensive and Can be Used in all Except the Very Small Service Stations

THE merchant who guesses at his costs, guesses likewise at his profits, and he is travelling at a high rate of speed on the road to bankruptcy. Because of the keen competition existing to-day a merchant must know his exact costs in order that he may be able to establish a selling price in line with that of his competitor and at the same time realize a fair margin of profit on his investment.

Service accounting is no different from that of a department store in so far as final results are concerned. The only difference is in the method employed to arrive at those results—namely profit and loss. The basic principles of a system, that may be easily adapted and made by making such changes as the nature or scope of a particular business may warrant, are outlined here.

The first requirement of an accounting system is a card of accounts. The basic accounts are:

- Assets.
- Liabilities.
- Reserves.
- Trading and Income Accounts.
- Expenses.

These five divisions embrace the basis of any well-founded accounting system. There are certain sub-divisions which are necessary, and each will be dealt with in its respective relation to the other, beginning with assets.

The word assets means property available for the payment of debts. The assets that would ordinarily be established in a service accounting system are:

- Properties.
- Equipment Inventories.
- Merchandise Stock Inventory.
- Cash.
- Accounts Receivable.
- Repair Shop Labor in Progress.
- Prepaid Charges.

The property accounts should be charged with the cost value of all real estate and all permanent improvements thereto, *provided such improvements add to the resale value of the property.*

The equipment inventory account should be charged at cost price with all equipment, furniture and fixtures. It will, however, be necessary to sub-divide equipment accounts for the purpose of arriving at proper depreciation, which will be explained more fully later.

Merchandise stock inventory should be charged with the cost value of all merchandise purchased and credited with all merchandise withdrawn by sale or otherwise.

Cash should be charged with all cash received and credited with all cash disbursed. A petty cash account should be established for a specified amount, and this cash is to be used for the payment of ordinary petty expenses.

Accounts receivable should be charged with all sales and credited with all money received for such sales.

The use of an account called Repair Shop Labor in Progress, introduces a considerable simplification into service accounting. Many shops charge the cost of each labor sale individually, which means as many labor cost entries as there are labor sales. This may be avoided by the use of a Repair Shop Labor in Progress account.

The Accrued Payroll, which is referred to later under the caption of Liabilities, is charged with all salaries and wages paid to employees, as shown by the Cash Disbursed Record. This account is, at the end of each month, credited with all salaries earned, and such credits are charged to the various expense accounts, with the exception of those earned by productive employees, which are charged to Repair Shop Labor in Progress.

Assume that on the first of the month there is no labor in progress, and that during the month \$5,000 is earned by productive employees. This would establish a debit balance in the Repair Shop Labor in Progress account of \$5,000, but inasmuch as sales would only have been credit-

By **H. C. TRENT**
New York Branch Willys-Overland

ed with the amount billed, it would be necessary to take an inventory of uncompleted work in progress, as indicated by detail of the repair orders. Assume that this inventory amounts to 200 hours. We would learn the book value of this inventory by figuring it at the selling price of labor to the public, which assume is \$2 per hour, so that the inventory would amount to \$400. This \$400 should remain in the account of Repair Shop Labor in Progress as an asset, and a journal entry should be made crediting

Accounts due others, commonly called accounts payable, consist of all money due for merchandise or other commodity. This account should be credited with all bills received, as indicated by the purchase ledger, and charged with all payments thereon.

Proprietor's account represents the amount of capital invested in the business by the proprietor. In corporations this account is known as capital stock. It is carried as a liability because the business is liable to the proprietor as an individual for the amount invested.

Accrued Items have several sub-divisions such as accrued payroll, accrued interest, etc. This means money earned as the result of these expenses but not paid. However, in order to determine the true operations of the business, it is necessary to charge such items to expense as they are earned, and carry them as an accrued item until such time as they are paid. This account has a similar relation to liabilities that prepaid charges has to assets.

Profit and Loss represents the dollar and cent result of the operations of a business after all profits have been taken and all expenses charged. This account is usually closed out at the end of the fiscal year by being transferred to proprietor's account in the case of a proprietorship, or to surplus in the case of a corporation. It is carried as a liability for the same reason that proprietor's account is carried as a liability.

Reserves are established as accounts to be credited with the depreciation taken on equipment, etc., and the anticipated loss from bad debts. The amounts credited to reserves each month are charged to expense accounts.

The term Trading and Income Accounts, as used by accountants, refer to those accounts dealing directly with sales. In a service organization they ordinarily consist of:

- Shop Labor Sales.
- Merchandise Sales.
- Cost of Shop Labor Sales.
- Cost of Merchandise Sales.
- Miscellaneous Income Accounts.

Shop Labor Sales account is credited with all labor sold to the public as indicated by the shop labor sales control in the journal. The amounts credited to this account are charged to accounts receivable.

Merchandise Sales is credited with all sales of merchandise as shown by the merchandise sales control in the journal, and charged to accounts receivable.

Cost of Repair Shop Labor Sales is charged with all wages paid to employees whose labor is sold to the public.

Cost of Merchandise Sales is charged with the cost price of merchandise sold. In a service organization, this cost is easily determined because of the uniform discounts customarily handled by such organizations, and therefore it is not difficult to cost each sale and make the proper charge to cost of sales. All charges to Cost of Merchandise Sales are credited to Merchandise Stock Inventory in the journal.

An income account should be established, to be known as Miscellaneous Gain and Loss Account. This account should be credited and charged with income and losses that cannot be classified under other headings, such as income from the sale of junk or a loss resulting from the theft of a tire from a customer's car.

Expenses, commonly called overhead, consist of the following:

- | | |
|-------------------------|-----------------|
| Salaries | Interest |
| Rent | Advertising |
| Insurance | Heat |
| Taxes | Light and Power |
| Depreciation | Water Rent |
| Telephone and Telegraph | Legal Expense |
| Bad Debts | Express |
| | Postage |

SHEET NO. _____											
RECORD OF CASH RECEIVED FOR THE MONTH _____ 19__ LEDGER NO. _____											
DAY	DESCRIPTION	CREDIT				CHARGE				CHARGE BANK	DAILY TOTAL
		ACCOUNTS RECEIVABLE	GENERAL LEDGER	DISCOUNT	FREIGHT	GENERAL LEDGER	AMOUNT	AMOUNT	AMOUNT		
		ACCT	AMOUNT	ALLOWED	ALLOWED	ACCT	AMOUNT	RECEIVED			
AMOUNTS BROUGHT FORWARD											

SHEET NO. _____												
RECORD OF CHECKS DRAWN ON _____ BANK FOR THE MONTH OF _____ 19__												
DAY	DRAWN TO THE ORDER OF	CREDIT				CREDIT				CHECK NO.	AMOUNT OF CHECK	DAILY TOTAL
		ACCOUNTS PAYABLE	GENERAL LEDGER	PURCHASE DISCOUNT	GENERAL LEDGER	AMOUNT	AMOUNT					
		ACCT	AMOUNT	DISCOUNT	ACCT	AMOUNT						
AMOUNTS BROUGHT FORWARD												

PAGE _____											
DEPT. PAYROLL FOR PERIOD _____ 19__ TO _____ 19__											
CLOCK NO.	DAYS OR DATES	TOTAL TIME	RATE	PER	TOTAL EARNED	DEDUCTIONS	NET AMOUNT				
BROUGHT FORWARD											

The Cash Received Record provides for itemizing all cash received and allows for proper distribution of same. The Cash Disbursed Record provides a similar detail for Cash Disbursed. The Payroll Record provides for a detail of salaries and wages earned and paid.

Repair Shop Labor in Progress for the difference of \$4,600, and charging same to Cost of Repair Shop Labor Sales.

This \$4,600 represents the cost of all labor billed during the month less the profit on the unbilled labor. Consequently the difference between it and the total sales billed for the month represents the gross profit on these sales plus the gross profit on the unbilled labor. In other words all profits on labor sales are taken in the month the labor is expended.

In the following month assume that the payroll indicates that \$4,000 was earned by productive employees. This will establish a debit balance in the Repair Shop Labor in Progress account of \$4,400. Assuming that the inventory this month is \$600, a journal entry would be made crediting Repair Shop Labor in Progress for \$3,800 and charging same to Cost of Repair Shop Labor Sales, thereby allowing the \$600 to remain in the account of Repair Shop Labor in Progress. The same procedure is followed each month.

In the operation of a business, it is often necessary to pay charges in advance for which the benefit will not actually be derived until a later date, such as insurance, prepaid rents, etc. Such expenses should be charged to prepaid charges at the time of payment and this account should be credited and the proper expense account charged each month by journal entry until the amount originally debited to prepaid charges has been disposed of.

The word liabilities means debts or obligations. They ordinarily consist of:

- Accounts due others.
- Proprietor's Account.
- Accrued Items.
- Profit and Loss.

Freight	Traveling Expense
Parcel Post	Elapsed Time
Maintenance of	Work Done Over
Equipment	—Material
Work Done Over —Labor	Policy—Material
Policy—Labor	Stationery
Association and	Supplies
Subscription	Miscellaneous

The reserve set up for bad debts should not exceed at any time 5 per cent. of the total accounts receivable. If this reserve is insufficient, credit is granted too laxly.

In the application of this system, the following books of record would be required:

- General Ledger.
Cash Received Record.
Cash Disbursed Record.
Journal.
Payroll Record.
Sales Ledger.
Purchase Ledger.

The Cash Received Record provides for itemizing all cash received and allows for the proper distribution of same. A detail of the charges and credits to the different accounts on this record is prepared and posted to the general ledger in total at the end of each month.

The Cash Disbursed Record provides a similar detail for cash disbursed.

The Journal is designed to include the sales journal. Its arrangement will vary with the business. It might be arranged with debit and credit columns under the following control headings: General Ledger, Accounts Payable Ledger, Accounts Receivable Ledger, Merchandise Inventories, Merchandise Sales, Shop Labor Sales, Gas and Oil Sales, and Miscellaneous.

The journal is used as a distribution book for the itemizing and distribution of all bills received, and also for adjustments transferring a charge or credit from one account to another. For instance, the charge for depreciation is entered in the journal each month as a credit to reserves and a charge to depreciation in the general ledger. A detail of the accounts in the journal, and the total thereof, is posted to the general ledger each month, as is done with cash records. The sales headings provide for the itemizing of sales made and their distribution. The total of the sales controls are transferred to the general ledger at the end of the month.

The Payroll Record provides for a detail of salaries and wages earned and paid to employees as well as the distribution of same. A separate payroll sheet should be prepared for productive and non-productive employees, and the sheet for non-productive employees should be divided up according to the different departments to which the

employees' salaries are charged. The total amount of salaries and wages earned, as indicated by the payroll record, is posted each month as a credit to the payroll account and charged to the various departments. This account shall be charged with all money paid to employees for salaries and wages as indicated by the cash disbursed record.

The Sales Ledger is provided for maintaining a record, in detail, of each individual account, and is charged with all sales, as indicated by the sales controls in the journal, and credited with cash received as shown by the cash received record. Charges are made from the sales invoices.

A detail of the balance appearing on this ledger is prepared each month, and it should at all times agree with the accounts receivable balance appearing in the general ledger.

The Purchase Ledger is used to provide a detail of all

[illegible]

The General Ledger Statement, Sheet No. 1, recapitulates the assets, liabilities and reserves after business has been in operation a month. Sheet No. 2 recapitulates the trading and income and expense accounts.

accounts payable. The operation of this ledger is identical with that of the sales ledger. Standard ledger forms are used in the general, sales and purchase ledgers.

The auxiliary forms ordinarily required for the correct operation of the system outlined consist of:

- Merchandise Sales Invoice.
- Repairshop Labor Sales Invoice.
- Employees' Time Cards
- Employees' Time Tickets.
- Petty Cash Record.
- Stock Requisitions.
- Purchase Orders.
- Receiving Sheets.
- Inventory Record.
- Merchandise Sales Credit Slips.
- Repairshop Labor Sales Credit Slips.

These forms are almost essential and, of course, there are more which might be added.

To illustrate the preparation of a balance sheet, assume that business is started with a capital of \$50,000. The balance sheet would show a credit for this amount to proprietor's account and a debit to cash for the same amount. General Ledger Statement, Sheet No. 1, recapitulates the

Banker's View of Automobile Situation

IN AN ADDRESS before the Kansas City Motor Car Dealers' Association, J. W. Perry, president of the Commerce Trust Co., made some pointed suggestions as to the fundamentals on which the successful automobile business of the future would be built. He also said that the territory was in splendid condition financially and that credit was easier today than for a long time past. Money will be available for the motor car dealer and distributor so that every man in the country who wants a car and who can afford to maintain it, can have one.

"I'm in favor of every banker, lawyer, doctor, farmer, and laboring man in this country having automobiles," said Mr. Perry, "under certain conditions. There is in every man's heart a desire to own an automobile—we can't get away from that. We all want to ride. The desire, so universal, has to be satisfied.

"The criterion as to who ought to buy a car is not 'who can afford it,' but 'who can afford to maintain it.'"

"You and the industry will be far better off if you sell only to the man who can afford to maintain the car. You'll get the best results in financing your business and in building your volume."

"You'll have to sell more service. For success in motor car selling hereafter will get down to service. It will get down to standardization—and the man who gives the most for the money, in car and service, will get the business.

"When I look up the matter of loaning to motor car dealers in Kansas City, I looked for the dealers who met these three tests: The one who was handling a standard car; the one who was giving the most personal attention to his business, and the one who was selling for cash.

"And some of you fellows will have to change your tune if you think any purchaser's note is good—the note isn't good unless the purchaser can afford to maintain the car.

"The notes that will be acceptable will be those on new machines.

"You fellows who think you can buy all the second-hand cars in sight, and get money on them, have another thought coming. The men who filled their back yards with second-hand cars are not in this meeting to-night. They are not in a position to go ahead with new car business.

"The second-hand car trade is a business in itself—don't mix it with the new car business."

Dealer's Frame of Mind

(Continued from Page 6)

The same methods which sold tractors in 1921 will sell them in 1922. The dealer may as well make up his mind that tractors are going to be sold and if he does not sell them, the more progressive and aggressive dealer will. There will be difficulties in the road, of course, and prospects are not going to come begging for tractors as was the case two years ago, but sales can be made by going after them in 1922 the same as in 1921.



The Tractor is the Key to the Implement Business in Your Territory. The Best Tractors are those that are Made to Fit in with the Machines of the McCormick-Deering Line.

THE time will come soon, if it is not already here, when the implement dealer without a tractor will find his business seeping away. If he does not modernize his methods he will wake to find the trade entirely in the hands of the tractor-selling dealers.

Titan and International Tractors

are now being sold under a very favorable 1922 contract. Place them at the head of the McCormick-Deering Line, and put the fight for business on a basis in keeping with the trend of the times.

It will pay you well, in good standing and in money, to push this policy with all your energy. There is plain practical selling help in the fact that this Company builds tractors and the most complete line of tractor-operated equipment to go hand in hand. Power and machines are designed for most effective unit operation.

Dealers in average farming communities everywhere have found enduring success in the distribution of McCormick-Deering machines. Tractor power and equipment will continue to be placed with the farmers most easily by dealers who equip themselves properly now to sell the McCormick-Deering Line.

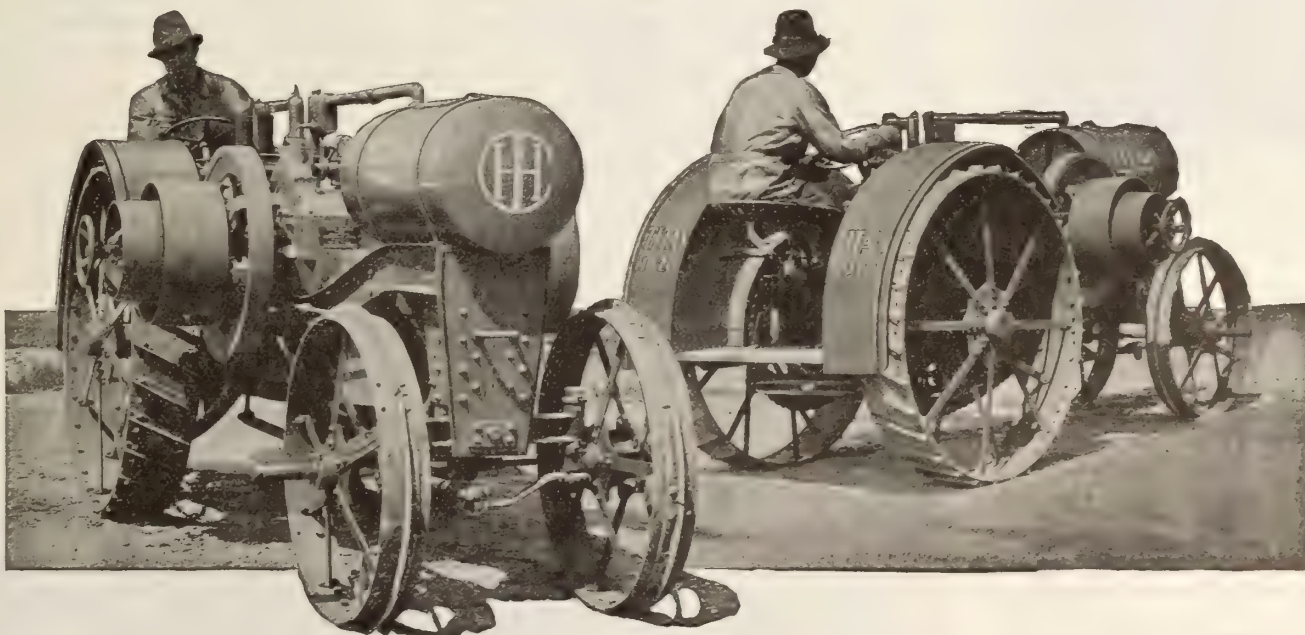
INTERNATIONAL HARVESTER COMPANY

OF CANADA LTD.

HAMILTON CANADA

WESTERN BRANCHES — BRANDON WINNIPEG MAN. CALGARY EDMONTON LETHBRIDGE, ALTA.,
ESTEVAN, N. BATTLEFORD, REGINA, SASKATOON YORKTON, SASK.

EASTERN BRANCHES — HAMILTON LONDON, OTTAWA ONT., MONTREAL QUEBEC, QUE. ST. JOHN, N. B.



Velie Announces New Series Model 58

THE VELIE Company have just announced an entirely new series known as Model 58 of 115-inch wheelbase equipped with a Velie-built six cylinder motor with overhead valves. The power plant, car design, equipment and finish present features for 1922 that have aroused widespread interest.

In style this car is characterized by graceful curves and long, flowing lines. While the style is of de-

mechanism is such that the complete motor forms a positive dust-tight and dirt-proof unit.

The crankshaft is held firmly in four bronze-backed bearings of unusual size—a bearing next to every connecting rod—eliminating any tendency to “whip” regardless of the engine speed. The crankshaft itself is accurately balanced as are the connecting rods and pistons.

The cylinders are $3\frac{1}{4}$ inch bore with $4\frac{1}{4}$ inch stroke, cast en bloc, with cylinders and pistons ground and lapped to fit. The connecting rods are bronze-bushed, the pin being held in the piston. Solid bronze-backed bearings are used everywhere, in the connecting rods, on the cam shaft and throughout the valve action.

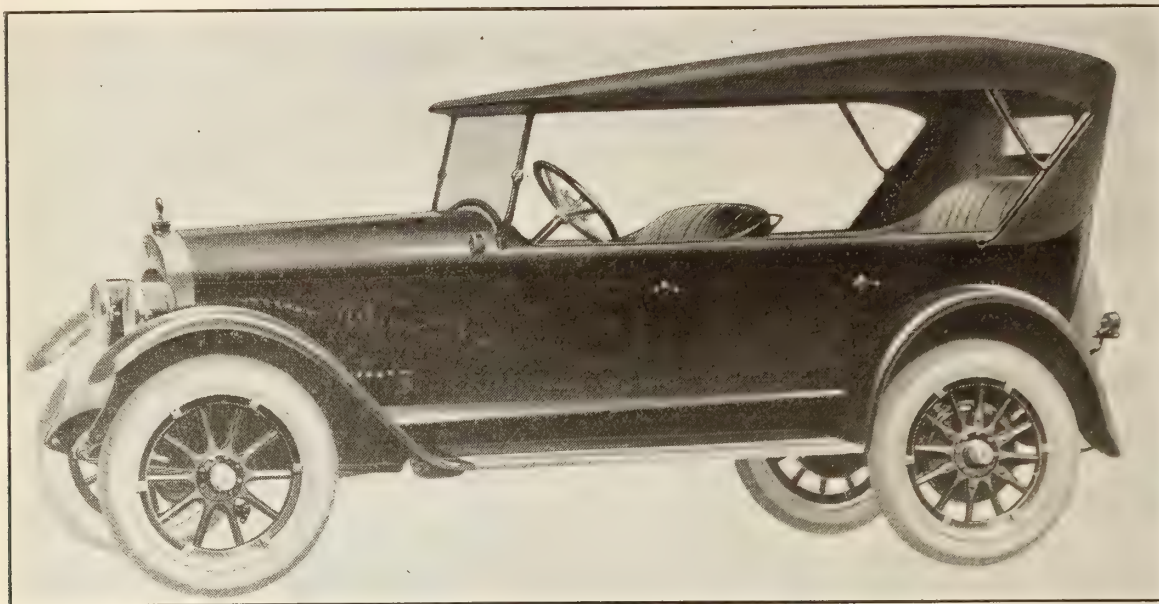
A “micarta” silencer is used in the front gears, giving a positive gear drive without any noise. Oil is supplied by direct pressure as to all other moving motor parts. Bijur two-unit starting and lighting systems; Atwater-Kent ignition and a specially designed and controlled Stromberg carburetor compose the motor accessories.

The steering gear is a worm and wheel type, fully adjustable and automatically lubricated. There is a new 18-inch walnut wheel with heavy aluminum spider and an interesting arrangement of controls.

The motor is in unit with the clutch and the transmission. The clutch is of Dooley make, single dry-plate type, with positive release. This clutch is smooth and soft in action and may be adjusted with the hands only, no tools being required.

The transmission is three-speed forward selective type, with heavy nickel steel gears and rocker arm shaft. The final drive is through two Arvac universal joints to the improved Timken rear axle. Spiral bevel drive gears make for absolute silence. Timken bearings are used throughout the rear axle as well as in the front wheels. Long semi-elliptic springs, front and rear, give wonderful riding comfort.

The tires are 32 x 4 non-skid cord all around on touring car and roadster, with 33 x $4\frac{1}{2}$ tires on enclosed models.

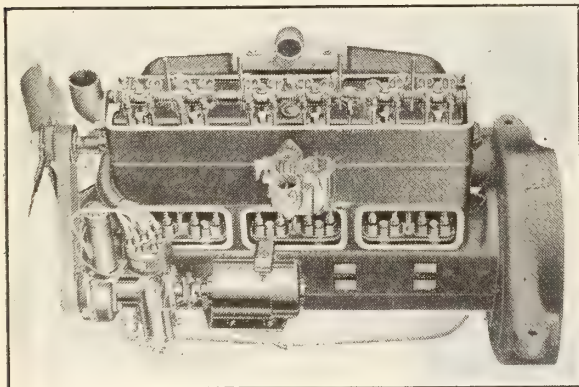


Five-passenger Touring Body of New Velie Chassis.

cidedly 1922 ideal, it is marked by its freedom from sharp extremes.

A choice of different colors is offered in royal blue, grey, or maroon. Long-grain enameled leather is used in all models.

Everything about the car even to minor details is new. Its rounded radiator and curved full-crowned fenders, accent the body lines. The drum-type headlights have lenses that conform to the law everywhere. A removable tonneau light on a long-reeled cord serves as a portable light for examination of any part of the car. There are new parking lights on the cowl. Interesting details of convenience and



Inlet side of Velie Engine with valve covers removed.

adornment are presented throughout — motometer with a specially-designed radiator cap; monogram hub caps; solid black walnut edging around the entire body, enclosing a solid walnut instrument panel.

Overhead Valve Motor

The power plant is designed by Velie engineers and built in the Velie plant.

Special pains have been taken with the lubrication system. Oil is pumped under pressure through the drilled crankshaft to every connecting rod bearing. From the rod-bearing, oil is forced through a tube directly to each piston pin. Oil leads likewise feed each cam shaft bearing, as well as the front gears themselves. Every moving part of the engine runs in a bath of oil. Oil is directly pumped through the drilled rocker-arm shaft, feeding supporting bearings and the rocker arms themselves. Cups on the push rods and on the tappets are kept full of oil at all times, providing a cushion against noise and practically eliminating wear.

No dirt, dust or grit can get into the motor. Construction of cylinder blocks, crank case and valve

AUBURN HAS NEW SPORT MODEL

Four-passenger; Fully Equipped

THE AUBURN Automobile Company, Auburn, Indiana, introduced at the New York Show a new sport model. This car is notable for the completeness of its equipment and the moderateness of its price.

The standard 6-51 chassis—the same chassis that is used with other 1922 Auburn Beauty Six models—forms the foundation for the new Sport car. There are, however, in addition to the regular chassis equipment, four shock absorbers—and a muffler cut-out is furnished.

A special body has been designed with high cowl, low sides, wide paneled doors and low inclined cushions. The car has unusually smart lines and presents a trim appearance. The radiator is nickel-plated over a brass shell. A bar filler cap together with a moto-meter is part of the equipment. There is a cowl ventilator. The upholstery is of genuine, semi-dull, long grain, black leather and is hand-buffed. The cushions are deep and the backs are high. Individual fenders are used, and polished aluminum steps replace the conventional running-board. A black trunk with nicked trimmings is carried on each side of the car; each trunk is fitted with a suitcase.

Headlights are of the latest barrel design, measuring eleven inches in diameter. These are full nickel finish and are mounted in brackets of Sterlite, a new

white metal that will not corrode or rust. There are cowl lights, of the barrel type to match the headlights. A parking light is placed on the left-rear fender; a tonneau light is also part of the equipment.

The windshield is low in design and has polished white metal side arms. Side windshield wings of special design are built integral with the windshield. All metal parts of windshield and wings are made of Sterlite.

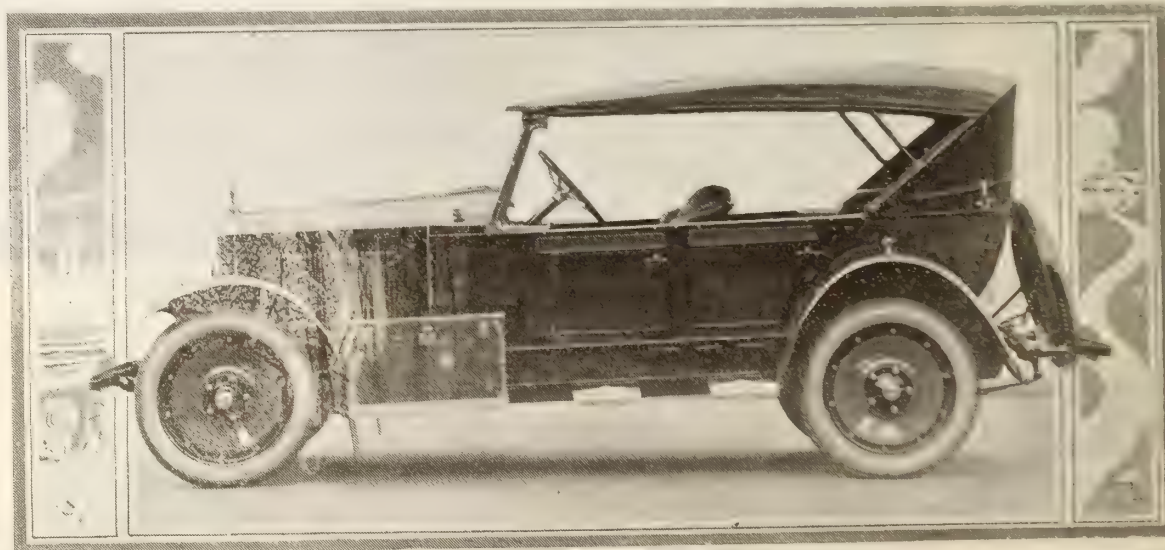
On the floor of the rear compartment is a bevel foot board which opens and reveals a generous container for luggage. Along the edge of the body there is the same type of polished aluminum body-moulding that has brought forth so much favorable comment in its use on other 1922 Auburn open models.

The top is of double texture top material. The slat irons are nickel-plated and the bows are mahogany finish. A top envelope and top rest irons are furnished.

Five Distel wheels and five 32 x $4\frac{1}{2}$ cord tires are part of the equipment. The extra wheel and tire are mounted at the rear. There are spring bumpers both front and rear.

A Continental 7-R Red Seal Motor is used.

The cylinders are six cast en bloc with a $3\frac{1}{4}$ inch bore and $4\frac{1}{2}$ inch stroke. Ignition, starting and lighting is Remy. The clutch is Borg & Beck. Wheel base is 121 inches.



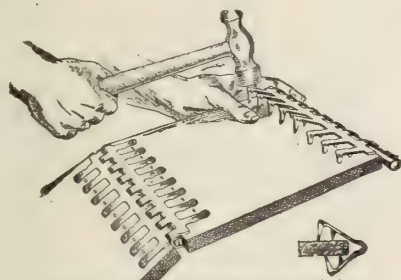
New Sport Model Announced By Auburn

How ALLIGATOR Sales Benefit the Dealer and the User

Easily Applied, Time Saving, ALLIGATOR STEEL BELT LACING Wins Immediate Approval ---and Praise for the Dealer

The customer is quite likely to consider it a personal favor when a dealer calls his attention to such a valuable time and money saving article as Alligator Steel Belt Lacing.

He not only buys that article confidently but his belief in the dealer is strengthened—and that means more business with its resultant profits for the dealer as time goes on.

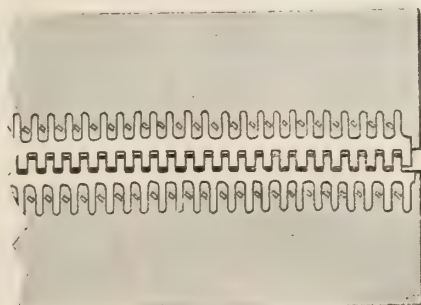


Nothing needed but a hammer to apply it—and you already have a hammer.

Anyone Can Apply Alligator Quickly

Possibly not one person in a dozen knows or understands the principles of lacing a belt with rawhide. The result is poorly made joints that break at most inconvenient times, causing delays, annoyance and extra work. Sometimes a broken belt will hold up the whole crew of workmen for an hour or more.

Compare the old method of lacing with the use of Alligator Steel Belt Lacing. A few blows with the hammer and it is in place. No skill needed. No experience, no tool but a hammer, and just a very few minutes to do the job. The result is a permanent hinge joint that will go wherever the belt will go. A joint no thicker than the belt and, in hundreds of tests, proven stronger than any other belt lacing on earth.

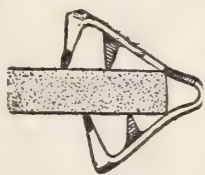


Section of Belting laced with "the Strongest Belt Lacing on Earth."

Packed Conveniently in Small Packages

To meet the requirements of the trade we have packed Alligator in packages of moderate quantities supplying the necessary hinge and gauge pins in each package and giving on the cover in unmistakable terms the very simple instructions for its application.

No. 25 Alligator —the General Purpose Farm Belt Lacing



For all belting from 3/16 to 7/32 inch thickness, which includes practically all work done with small farm engines and light drives.

This includes heavy single leather and "single" or four-ply fabric belts. Will run over all pulleys of 3-inch diameter or larger. Box No. F25 contains sufficient Alligator in 8-inch lengths to lace 48 inches in width of belting.

For Thresher and Tractor Drive Belts Sell No. 35

For double leather and "double" or five-ply fabric belts up to 5/16 inch thick. This includes practically all the belts driven from medium and large sized farm engines and tractors, including threshers, saws, etc. Will run over all pulleys of 6 inches diameter or larger.

Box No. M35 contains sufficient Alligator in 8-inch lengths to lace 32 inches in width of belting.

A Size for Every Belt

We describe here only two of our most popular sizes but Alligator Steel Belt Lacing is made in eleven different sizes to care for every possible thickness and type of belt from printers' tape belts to gigantic belts of five-eighths inch thickness. Should you meet special requirements among your mill, factory, mining or other customers, you may recommend Alligator to them as confidently for one size belt as another. Regardless of the kind of belt, its width or speed, the use of idler pulleys and difficult drives, the extra strength of Alligator will give better service than any lacing ever devised.

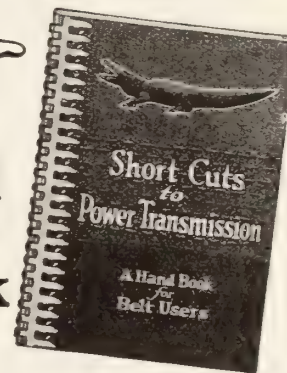


Rocker pin makes possible the use of a hinge belt joint in damp places and under heavy loads where a rawhide pin will not stand.

Thus, with its simplicity, its broad field of usefulness, its time and money saving features, and its excellent performance, Alligator Steel Belt Lacing merits a place in your stock.



**Send
for this
Book
Now**



Valuable booklet mailed with our compliments tells all the average man needs to know about belting—the advantages of the different kinds, how to care for belts, how to determine width, length and thickness needed, etc. Also explains in full Alligator Belt Lacing, describing sizes and belts upon which their use is recommended. Write now for your copy—thousands already mailed to dealers, technical men, schools, farmers and all classes interested in belting. Use the coupon.



Flexible Steel Lacing Co.,

4684 Lexington St., Chicago

135 Finsbury Pavement, E.C. 2, London

Sold by leading jobbers throughout Canada

Flexible Steel Lacing Co.,
4684 Lexington St., Chicago.

Gentlemen: Without obligation, kindly send me price lists and complete details on Alligator Steel Belt Lacing and indicate a convenient source of supply. Also send your book, "Short Cuts to Power Transmission."

Firm Name.....

Address

Name of Inquirer.....

Specifications of Trucks Sold in Canada

NAME AND MODEL	Tons Capacity	Engine	Bore and Stroke	Radiator	Carburetor	Governor	Ignition	Battery	Brake Lining	Final Drive	Tires	
											Front	Rear
Commerce T	1-1 1/4	Continental	3 3/4 x 5		Zenith		Eiseman	Willard		B	34x5 1/2	34x5 1/2
Commerce 12	1 1/2	Continental	3 3/4 x 5		Zenith		Eiseman	Willard		I	34x5 1/2	34x5 1/2
Commerce 16	2	Continental	3 3/4 x 5		Zenith		Eiseman	Willard		I	34x5 1/2	34x5 1/2
Commerce 18	2 1/2	Continental	4 1/2 x 5 1/4		Zenith		Eiseman	Willard		I	34x5 1/2	34x5 1/2
Chevrolet G	3/4	Own	3 11/16 x 4		Zenith		Remy			St	33x4 1/2	33x4 1/2
Chevrolet T	1	Own	3 11/16 x 5 1/4		Zenith		Remy			W	33x4 1/2	33x4 1/2
Chevrolet Light Delivery		Own	3 11/16 x 4		Zenith		Remy				30x3 1/2	30x3 1/2
Denby 31	3/4-1 1/4	Continental	3 3/4 x 5	Long	Stromberg	Monarch	Eiseman	Willard		B	34x5 1/2	34x5 1/2
Denby 33	1 1/2	Continental	3 3/4 x 5	Long	Stromberg	Monarch	Eiseman	Willard		I	34x5 1/2	34x5 1/2
Denby 34	2	Continental	3 3/4 x 5	Long	Stromberg	Monarch	Eiseman	Willard		I	34x5 1/2	34x5 1/2
Denby 25	3	Continental	4 1/2 x 5 1/4	Long	Stromberg	Monarch	Eiseman	Willard		I	34x5 1/2	34x5 1/2
Denby 27	4	Continental	4 1/2 x 5 1/4	Long	Stromberg	Duplex	Eiseman	Willard		I	34x5 1/2	34x5 1/2
Denby 210	5	Continental	4 1/2 x 5 1/4	Long	Stromberg	Duplex	Eiseman	Willard		I	34x5 1/2	34x5 1/2
Denby 214	7	Continental	5x6	Long	Stromberg	Duplex	Eiseman	Willard		I	34x5 1/2	34x5 1/2
Diamond T O-3	1-1 1/4	Hink	3 3/4 x 5 1/4	G and O	Stromberg	Special	Bosch			W	34x5 1/2	34x5 1/2
Diamond T T	1 1/2	Hink	3 3/4 x 5 1/4	G and O	Stromberg	Special	Bosch			W	34x5 1/2	34x5 1/2
Diamond T FS	1 1/2	Hink	3 3/4 x 5 1/4	G and O	Stromberg	Special	Bosch			W	34x5 1/2	34x5 1/2
Diamond T U	2	Hink	4x5 1/4	G and O	Stromberg	Special	Bosch			W	34x5 1/2	34x5 1/2
Diamond T K	3 1/2	Hink	4 1/2 x 5 1/4	G and O	Stromberg	Special	Bosch			W	34x5 1/2	34x5 1/2
Diamond T EL	5	Hink	4 1/2 x 5 1/4	G and O	Stromberg	Special	Bosch			W	34x5 1/2	34x5 1/2
Diamond T S	5	Lib B	4 1/2 x 6	G and O	Stromberg	Special	Bosch			W	34x5 1/2	34x5 1/2
Ford TT	1	Own	3 3/4 x 4		Holley		Own	Exide		W	34x5 1/2	34x5 1/2
F. W. D. B.	3	Wisconsin	4 1/2 x 5 1/4		Stromberg	Pierce	Eiseman			B	34x5 1/2	34x5 1/2
Federal 1	1	Continental	3 3/4 x 5	Own	Zenith	Pharo	Eiseman			W	34x5 1/2	34x5 1/2
Federal 1 1/2	1 1/2	Continental	4 1/2 x 5 1/4	Own	Zenith		Eiseman	None		W	34x5 1/2	34x5 1/2
Federal 2	2	Continental	4 1/2 x 5 1/4	Own	Zenith		Eiseman	None		W	34x5 1/2	34x5 1/2
Federal 3 1/2	3 1/2	Continental	4 1/2 x 5 1/4	Own	Zenith		Eiseman	None		W	34x5 1/2	34x5 1/2
Federal 5-6	5-6	Continental	4 1/2 x 6	Own	Zenith		Eiseman	None		W	34x5 1/2	34x5 1/2
G and J 20	1	Buda	3 3/4 x 5 1/4		Zenith		Bosch	Bosch		W	34x5 1/2	34x5 1/2
G and J A	2 1/2	Hink	4x5 1/4		Stromberg		Bosch			W	34x5 1/2	34x5 1/2
G and J A	4	Hink	4 1/2 x 5 1/4		Stromberg		Bosch			W	34x5 1/2	34x5 1/2
Gary F	1 1/2	Buda W U	3 3/4 x 5		Master	Pierce	Eiseman			W	34x5 1/2	34x5 1/2
Gary J	1 1/2	Buda I U	4x4 1/2		Master	McCanna	Eiseman			W	34x5 1/2	34x5 1/2
Gary Bus	1	Buda H U	4 1/2 x 5 1/4		Master		Eiseman	Vesta		W	34x5 1/2	34x5 1/2
Gary J	2 1/2	Buda H T U	4 1/2 x 5 1/4		Master	McCanna	Eiseman			W	34x5 1/2	34x5 1/2
Gary K	3 1/2	Buda Y T U	4 1/2 x 6		Master	McCanna	Eiseman			W	34x5 1/2	34x5 1/2
Gary M	5	Buda B T U	5x6 1/2		Master	McCanna	Eiseman			W	34x5 1/2	34x5 1/2
G. M. C. K16	1	Own	3 3/4 x 5	Own		Own	Eiseman	Willard		W	34x5 1/2	34x5 1/2
G. M. C. K41A	2	Own	4x5 1/4	Own		Own	Eiseman	Willard		W	34x5 1/2	34x5 1/2
G. M. C. K41B	2	Own	4x5 1/4	Own		Own	Eiseman	Willard		W	34x5 1/2	34x5 1/2
G. M. C. K71A	3 1/2	Own	4 1/2 x 5 1/4	Own		Own	Eiseman	Willard		W	34x5 1/2	34x5 1/2
G. M. C. K71B	3 1/2	Own	4 1/2 x 5 1/4	Own		Own	Eiseman	Willard		W	34x5 1/2	34x5 1/2
G. M. C. K101A	5	Own	4 1/2 x 6	Own		Own	Eiseman	Willard		W	34x5 1/2	34x5 1/2
Garford 15	3 1/2	Continental	3 3/4 x 5 1/4				Eiseman	Willard		W	34x5 1/2	34x5 1/2
Garford 25	1 1/4	Continental	3 3/4 x 5 1/4							W	34x5 1/2	34x5 1/2
Garford 70H	2	Continental	3 3/4 x 5 1/4							W	34x5 1/2	34x5 1/2
Garford 77D	3 1/2	Continental	4 1/2 x 6							W	34x5 1/2	34x5 1/2
Garford 68D	5	Continental	5x6 1/2							W	34x5 1/2	34x5 1/2
Garford 150A	7 1/2	Continental	5x6 1/2							C	34x5 1/2	34x5 1/2
International S	3 1/2	Own	3 3/4 x 5		Ensign					Thermoid	34x5 1/2	34x5 1/2
International 21	1	Own	3 3/4 x 5 1/4		Ensign					Thermoid	34x5 1/2	34x5 1/2
International 31	1 1/2	Own	3 3/4 x 5 1/4		Ensign					Thermoid	34x5 1/2	34x5 1/2
International 41	2	Own	3 3/4 x 5 1/4		Ensign					Thermoid	34x5 1/2	34x5 1/2
International 61	3	Own	4 1/2 x 5		Ensign					Thermoid	34x5 1/2	34x5 1/2
International 101	5	Own	4 1/2 x 5		Ensign					Thermoid	34x5 1/2	34x5 1/2
Maccar 1 1/2	1 1/2	Continental	4 1/2 x 5 1/4			Mueller	Eiseman	Prest-o-Lite		W	34x5 1/2	34x5 1/2
Maccar HA	2	Continental	4 1/2 x 5 1/4			Mueller	Eiseman	Prest-o-Lite		W	34x5 1/2	34x5 1/2
Maccar H-2	3	Continental	4 1/2 x 5 1/4			Mueller	Eiseman	Prest-o-Lite		W	34x5 1/2	34x5 1/2
Maccar M-2	4	Wisconsin	4 1/2 x 6			Mueller	Eiseman	Prest-o-Lite		W	34x5 1/2	34x5 1/2
Maccar 5	5	Continental	4 1/2 x 6			Mueller	Eiseman	Prest-o-Lite		W	34x5 1/2	34x5 1/2
Mack ABDR	1 1/2	Own	4x5	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack AB	2 1/2	Own	4x5	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack A B Chain	1 1/2	Own	4x5	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack AB Chain	2	Own	4x5	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack A B D R	2	Own	4x5	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack A C Chain	3 1/2	Own	5x6	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack A C Chain	5	Own	5x6	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack A C Chain	6 1/2	Own	5x6	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack A C Chain	7 1/2	Own	5x6	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack Trac AB	5	Own	4x5	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack Trac AC	7	Own	5x6	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack Trac AC	10	Own	5x6	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack Trac AC	13	Own	5x6	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mack Trac AC	15	Own	5x6	Own	Shebler	Own				W	34x5 1/2	34x5 1/2
Mapleleaf AA	2	Own	4x5 1/4							W	34x5 1/2	34x5 1/2
Mapleleaf BB	3	Own	4 1/2 x 5 1/4							W	34x5 1/2	34x5 1/2
Mapleleaf CC	4	Own	4 1/2 x 5 1/4							W	34x5 1/2	34x5 1/2
Mapleleaf DD	5	Own	4 1/2 x 5 1/4							W	34x5 1/2	34x5 1/2
Nash 2018	1	Own	3 3/4 x 5 1/4		Stromberg	Simplex	Eiseman	Willard		I	34x5 1/2	34x5 1/2
Nash 3018	2	Own	3 3/4 x 5 1/4		Stromberg	Simplex	Eiseman	Willard		I	34x5 1/2	34x5 1/2
Nash Quad	2	Buda	4 1/2 x 5 1/4		Stromberg	Simplex	Eiseman			I	34x5 1/2	34x5 1/2
Oldsmobile	1		3 11/16 x 5 1/4		Zenith					I	34x5 1/2	34x5 1/2
Paige 52-19	1 1/2	Hink	4x5 1/4	Amer Can	Stromberg	Hinkley	Bosch			W	34x5 1/2	34x5 1/2
Paige 54-20	2 1/2	Hink	4 1/2 x 5 1/4	Amer Can	Stromberg	Simplex	Bosch			W	34x5 1/2	34x5 1/2
Paige 51-18	3 1/2	Hink	4 1/2 x 5 1/4	Amer Can	Stromberg	Simplex	Bosch			W	34x5 1/2	34x5 1/2
Packard EC	1 1/2-3	Own	4 3/16 x 5 1/4		Own		Dixie			W	34x5 1/2	34x5 1/2
Packard ED	2-4 1/2	Own	4 1/2 x 5 1/4		Own		Dixie			W	34x5 1/2	34x5 1/2
Packard EF	4-7 1/2	Own	5x5 1/4		Own		Dixie			W	34x5 1/2	34x5 1/2
Reo F	1 1/4	Own	4 1/2 x 4 1/2	Own	Johnson			Willard		B	34x5 1/2	34x5 1/2
Republic 75	3/4	Lyc	3 3/4 x 5		Stromberg		Auto-L			I	34x5 1/2	34x5 1/2
Republic 10	1	Continental	3 3/4 x 5		Stromberg		Bosch			I	34x5 1/2	34x5 1/2
Republic 10-E	1	Continental	3 3/4 x 5		Stromberg		Bosch			I	34x5 1/2	34x5 1/2
Republic 11-X	1 1/2	Continental	3 3/4 x 5		Stromberg					I	34x5 1/2	34x5 1/2
Republic 20	3 1/2	Continental	4 1/2 x 5 1/4		Stromberg					I	34x5 1/2	34x5 1/2

NAME AND MODEL	Tons Capacity	Engine	Bore and Stroke	Radiator	Carburetor	Governor	Ignition	Battery	Brake Lining	Final Drive	Tires	
											Front	Rear
Service.....	220	1...	Buda...	3 1/2 x 5 1/4	Long...	Stromberg...	Eiseman			W	34x3 1/2	34x5
Service.....	31	1 1/2	Buda...	4 1/2 x 5 1/4	Long...	Stromberg...	Eiseman			W	36x3 1/2	36x5
Service.....	36	1 1/2	Buda...	4 1/2 x 5 1/4	Long...	Stromberg...	Eiseman			W	35x5	36x7
Service.....	51	2 1/2	Buda...	4 1/2 x 5 1/4	Long...	Stromberg...	Eiseman			W	36x4	36x7
Service.....	71	3 1/2	Buda...	4 1/2 x 5 1/4	Long...	Stromberg...	Eiseman			W	36x5	36x5d
Service.....	76	3 1/2	Buda...	4 1/2 x 6	Long...	Stromberg...	Eiseman			W	36x5	36x5d
Service.....	101	5	Buda...	4 1/2 x 6	Long...	Stromberg...	Eiseman			W	36x6	40x6d
Service.....	15	1	Mid...	3 1/2 x 5	Long...	Shebler	Remy			B	34x5	35x5
Service.....	12	3/4	Mid...	3 1/2 x 4 1/2	Long...	Shebler	Remy			B	32x4 1/2	32x4 1/2
Sterling.....	1 1/2	1 1/2	Own	4x5 1/4	Own	Wauk.	Eiseman	Gould	Raybestos	W	36x3 1/2	36x5
Sterling.....	2	2	Own	4x5 1/4	Own	Wauk.	Eiseman	Gould	Raybestos	W	36x4	36x6
Sterling.....	2 1/2	2 1/2	Own	4 1/2 x 5 1/4	Own	Wauk.	Eiseman	Gould	Raybestos	W	36x4	36x4d
Sterling.....	3 1/2	3 1/2	Own	4 1/2 x 6 1/4	Own	Wauk.	Eiseman	Gould	Raybestos	W	36x5	40x5d
Sterling.....	5-W	5	Own	5x6 1/4	Own	Wauk.	Eiseman	Gould	Raybestos	W	36x6	40x6d
Sterling.....	5-C	5	Own	5x6 1/4	Own	Wauk.	Eiseman	Gould	Raybestos	C	36x6	40x6d
Sterling.....	7 1/2	7 1/2	Own	5x6 1/4	Own	Wauk.	Eiseman	Gould	Raybestos	C	36x6	40x7d
Samson.....	15	1 1/2		3 11/16 x 4		Zenith				B	32x4 1/2	32x4 1/2
Samson.....	25	1 1/2		3 11/16 x 5 1/4		Zenith				B	35x5 1/2	35x5 1/2
Traffic.....	6	6	Continental	3 3/4 x 5	Own	Carter	Bosch			I	36x4	36x7
Traffic.....	4	4	Continental	3 3/4 x 5	Own	Carter	Bosch			I	34x3 1/2	34x5
Traffic.....		3	Continental	3 3/4 x 5	Own	Carter	Bosch	Willard		I		
Veteran.....	E	1 1/2	Buda...	3 1/2 x 5 1/4	McCord	Zenith	Duplex	Eiseman		W	35x5 1/2	36x6 1/2
Veteran.....	A	2-2 1/2	Buda...	4 1/2 x 5 1/4	McCord	Zenith	Duplex	Eiseman		W	36x4 1/2	36x7 1/2
Veteran.....	D	2 1/2-3	Buda...	4 1/2 x 5 1/4	McCord	Zenith	Duplex	Eiseman		W	36x4 1/2	36x7 1/2
Veteran.....	H	3 1/2 x 4	Buda...	4 1/2 x 6	McCord	Zenith	Duplex	Eiseman		W	36x5	36x5d
Velie.....	46	1 1/2	Continental	3 3/4 x 5		Stromberg	Ber.			I	36x3 1/2	36x5
White.....	15	3/4	Own	3 1/2 x 5 1/4	Own					B	34x5 1/2	34x5 1/2
White.....	20	2	Own	3 1/2 x 5 1/4	Own					B	36x4	36x7
White.....	40	3 1/2	Own	3 1/2 x 5 1/4	Own	Own				D	36x5	40x5d
White.....	45	5	Own	4 1/2 x 5 1/4	Own	Own				D	36x6	40x6d

Specifications of Farm Tractors Sold in Canada

TRADE NAME	H. P. Rating	Plow Rating	Wheels or Crawlers	Cylinders Bore & Stroke	Cylinders Vert or Hors	Fuel	Ignition System	Lubrication	Governor	Wheel Base	Frame or Unit Construction	Weight in Pounds
Allis-Chalmers.....	18-30	4	4	4-4 1/2 x 6 1/2	Vertical	Gas or Ker.	Magneto	Pressure	Flyball	94	Unit	6150
Allis-Chalmers.....	15-25	3	4	4-4 1/2 x 5 1/4	Vertical	Gas	Magneto	Pressure	Flyball	78	Unit	4400
Aultman.....	15-30	4	4	4-5 x 6 1/4	Vertical	Ker.	Magneto	Pressure	Cent.	98 1/2	Frame	7800
Aultman.....	22-45	6	4	4-5 1/2 x 8	Horizontal	Ker.	Magneto	Force Feed	Cent.	104	Frame	12300
Aultman.....	30-60	8-10	4	4-7 x 9	Horizontal	Ker.	Magneto	Force Feed	Cent.	136	Frame	22500
Austin.....	25	3	4	4-3 3/4 x 5		Gas or Ker.	Magneto			68		4032
Avery.....	8-16	2-3	4	2-5 1/2 x 6		G. K. D.	Magneto				Frame	
Avery.....	12-25	2-3	4	2-6 1/2 x 7		G. D. K.	Magneto				Frame	
Avery.....	14-28	3-4	4	4-4 1/2 x 7		G. D. K.	Magneto				Frame	
Avery.....	18-36	3-4	4	4-5 1/2 x 6		G. D. K.	Magneto				Frame	
Avery.....	25-50	4-5	4	4-6 1/2 x 7		G. D. K.	Magneto				Frame	
Avery.....	40-80		4			G. D. K.	Magneto				Frame	
Case.....	10-13	2	4	4-3 1/2 x 5	Vertical	Gas or Ker.	Magneto	Force Feed	Flyball	65	Unit	3820
Case.....	15-27	3	4	4-4 1/2 x 6	Vertical	Gas or Ker.	Magneto	Force Feed	Flyball	76 1/2	Unit	6460
Case.....	22-40	4-5	4	4-5 1/2 x 6 3/4	Vertical	G. K. D.	Magneto	Force Feed	Own	96	Frame	9700
Chase.....	12-25	2-3	3	4-1 1/2 x 5 1/4	Vertical	Gas or Ker.	Dixie Mag		Pierce	94	Frame	5200
Cletrac.....	12-20	2-3	2*	4-4 x 5 1/4	Vertical	Gas or Ker.	Magneto	Force Feed	Flyball	96	Frame	3550
Cletrac.....	9-16	2	2*	4-3 1/2 x 4 1/2	Vertical	Gas or Ker.	Magneto	Splash	Flyball	83	Unit	1820
E-B.....	AA	3	4	4-4 3/4 x 5	Vertical	Ker	K.W. Mag.	Splash	Own	87	Frame	4355
E-B.....	Q	3	4	4-4 1/2 x 5	Vertical	Ker	K. W. Mag.	Splash	Own	93	Frame	6500
E-B.....	16-32	4	4	4-5 1/2 x 7	Vertical	Ker	K. W. Mag.	Splash	Own	125	Frame	9700
Fordson.....		2	4	4-4 x 5	Vertical	Ker	Own	Splash		63	Unit	2543
Gray.....	18-36	3-4	5	4-4 1/2 x 6 1/4	Vertical	Gas or Ker.	Bosch Mag.	Splash	Wauk.	105	Frame	6300
Hart-Parr.....	20	3	4	2-6 1/2 x 7	Horizontal	Ker	K. W. Mag.	Force Feed	Flyball	75	Frame	
Heider.....	12-20	3	4	4-1 1/2 x 6 1/4	Vertical	Gas or Ker.	Magneto	Cir. Splash		96	Frame	6000
Heider.....	9-16	2	4	4-1 1/2 x 5 1/4	Vertical	Gas or Ker.	Magneto	Cir. Splash		90	Frame	4000
Huber Light Four.....	12-25	3	4	4-1 1/2 x 5 3/4	Vertical	Gas or Ker.	King Mag.	Splash	Wauk.	91	Frame	5000
Huber Super Four.....	15-30	3-4	4	4-4 1/2 x 6	Vertical	Gas	Eiseman Mag	Force Feed	Taco	91	Frame	6000
Imperial.....	15-30	3-4	4	4-5 1/2 x 6	Vertical	Ker	Dixie Mag	Pressure	Flyball	84	Frame	6250
International.....	8-16	2	4	4-4 1/2 x 5	Vertical	G. D. K.	Magneto	Force Feed	Flyball	85	Frame	3600
Titan.....	10-20	3	4	2-6 1/2 x 8	Horizontal	G. K. D.	Magneto		Flyball	91	Frame	5700
International.....	15-30	4	4	4-5 1/2 x 8	Horizontal	G. D. K.	Magneto		Flyball	94	Frame	8700
Lauson.....	12-25	3	4	4-4 1/2 x 5 3/4	Vertical	Gas or Ker.	Dixie Mag	Cir. Splash	Own		Frame	
Lauson.....	15-25	3-4	4	4-4 1/2 x 6	Vertical	Gas or Ker.	Dixie Mag	Cir. Splash	Own		Frame	4500
Lauson.....	15-30	3-4	4	4-4 1/2 x 6	Vertical	Gas or Ker.	Dixie Mag	Cir. Splash	Own	86	Frame	6500
Lauson Road.....	15-30		4	4-4 1/2 x 6	Vertical	Gas or Ker.	Dixie Mag	Cir. Splash	Own	86	Frame	9500
Moline Universal.....	9-18	2-3	2	4-3 1/2 x 5	Vertical	Gas	Remy	Force Feed	Remy	84	Unit	3380
Moline Orchard.....	9-18	2-3	2	4-3 1/2 x 5	Vertical	Gas	Remy	Force Feed	Remy	84	Unit	2200
Monarch.....	12-20	3	2*	4-4 x 6	Vertical	Ker	K. W. Mag.	Cir. Splash	Erd	60	Frame	6000
Massey-Harris.....	12-25	3	4	4-1 1/2 x 5 1/4	Vertical	Ker Gas	Kingston M.	Splash	Pickering			5200
Nelson.....	4 W. D.	4	4	4-4 1/2 x 5 1/4	Vertical	Gas	K. W. Mag.	Force Feed				
Oil Pull.....	K	3	4	2-4 x 8	Horizontal	Ker. D.				80	Frame	6682
Oil Pull.....	H	4	4	2-7 x 8 1/2	Horizontal	Ker. D.				92 1/2	Frame	9600
Oil Pull.....	G	5-6	4	2-8 x 10	Horizontal	Ker. D.				103	Frame	12820
Oil Pull.....	E	8-10	4	2-10 x 12	Horizontal	Ker. D.				141	Frame	26700
Reliable.....	10-20	m. 2-	4	2-6 x 7	Horizontal	Ker				77	Frame	3800
Samson.....	M	2-3	4	4-4 x 5 1/4	Vertical	Gas or Ker.				64	Unit	3400
Sawyer-Massey.....	11-22	3	4	4-4 x 6	Vertical	Ker	Dixie Mag	Splash	Pickering	85 1/2	Frame	5400
Sawyer-Massey.....	20-40	5-6	4	4-5 1/2 x 7	Vertical	Ker	Dixie Mag	Spl. Fce Feed	Flyball	114	Frame	11400
Sawyer-Massey.....	25-50	6-8	4	4-6 1/2 x 8	Vertical	Ker	Dixie Mag	Spl. Fce Feed	Flyball	124	Frame	17500
Waterloo Boy.....	12-25	3	4	2-6 1/2 x 7	Horizontal	Ker	Dixie Mag	Splash	Own	90	Frame	6183
Whitney.....	B	2	4	2-5 1/2 x 6 1/2	Horizontal	Ker	Magneto	Force Feed	Own	82	Frame	3000

Trucks—Final Drive: W—Worm, I—Internal Gear, C—Chains, D—Double Reduction, B—Bevel. Tires: *—Optional, †—Pneumatic, d—dual. All others solid.

Tractors: *—Crawlers.



SHOP NOTES FOR THE GARAGE MAN



Learning to Weld—Part II

Preheating Is Very Essential—When to Preheat—Table Showing Approximate Temperature Colors—Protecting the Weld—Penetration—Welding Speeds—Testing Welds—Brazing

IN THE January issue of M.T.I. we commenced a series of three articles on oxy-acetylene welding for beginners. The points discussed in the first article were; torch movement, beveling and preparation of thin and thick metal sections or welding.—Editor.

Preheating

When welding brittle metals like cast iron and aluminum it is necessary to preheat an extended area surrounding the joint before undertaking to weld under conditions where the metal will be unduly stressed by local heating; or to confine the heated area to a narrow zone by cooling with asbestos soaked in water. Preheating may be accomplished in small parts with the welding flame, but it is very wasteful if not impossible to preheat large castings in this manner. Preheating is usually accomplished by means of charcoal or coke fires or by gas oil or oil burners. The heat should be applied to those parts that will be stressed most by local expansion, and means should be provided to conserve the heat and prevent waste of fuel. It is customary to build crude temporary furnaces of brick or sheet iron around parts to be preheated to confine the flames and direct them where the heat is required. Preheating of stoves and furnaces is desirable when the volume of work warrants the investment.

Temperature Colors, Approximate

Color	Deg. F.
Faint red visible in dark	750
Faint red	900
Blood red	1050
Dark cherry	1175
Medium cherry	1250
Cherry or full red	1375
Bright red	1550
Salmon	1650
Orange	1725
Lemon	1825
Light yellow	1975
White heat	2200
Bright white heat	2500
Brilliant white heat	2700
Dazzling white heat	2900

The proper location of preheating flame may puzzle the beginner in the welding game, but if he will stop to consider where a wedge driven into the weld would be likely to break the surrounding parts it will not be difficult to decide where the wedging effect will most severely stress the metal. Preheating should be applied to these points. Attention should be given to slender parts that may be slightly bent by expansion stresses. These are likely to break and they should be preheated to increase their flexibility under bending stresses.

The welder should thoroughly appreciate the economy of preheating due to saving the costly welding gases. It is advisable to preheat heavy castings simply to save oxygen and acetylene even though there is no danger of ex-

pansion stresses causing fracture. A preheated casting is welded in less time and a sounder job results than if welding is begun with cold metal.

When to Preheat

The welder of cast iron when in doubt, always preheats, if possible. He thereby insures the casting against breakage in the process of welding, saves gas and insures a sound weld. If trouble is met in getting the metal to flow, when welding a heavy cylinder, the reason almost always is that heat is being absorbed so rapidly that the metal cannot be raised to the fusion point beneath the torch flame. If

It is somewhat difficult to emphasize the importance of preheating cast iron parts without conveying the impression that it should be done invariably. The inexperienced welder should always preheat and only as he gains skill and experience may he undertake the risk of not preheating. In other words, the oxy-acetylene welder should go through a period when he preheats everything, but the expert welder may, through knowledge and acquired skill, handle jobs successfully without preheating on which the less experienced welder would fail. No two jobs are alike, and set rules cannot be fixed as to what to preheat and what not to preheat. The only rule safely followed is: "When in doubt, preheat."

Castings having closed cored spaces such as piston heads should be handled with caution. Oil may have leaked into these spaces, and if the part is preheated the gas generated and confined may cause an explosion. The first thing to do is remove the core plugs so as to permit gas to escape freely.

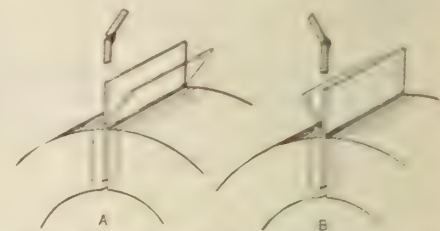
Protecting the Weld

When a weld is completed the torch

protect the whole casting from drafts and rapid local cooling. Rapid cooling not only is dangerous but it tends to harden the metal if very hot and make it brittle which might be the cause of failure in service.

Penetration

A common fault of a beginner's welds is "adhesion." When torn apart



Testing Steel Plate Welds in the Vise with the Weld and Against the Weld.

an adhered weld shows that the weld metal is plastered on and stuck in spots, whereas in a sound or cohered weld the weld metal and parent metal are thoroughly united. For want of a better term "penetration" is used to express thorough knitting or interlocking of a weld. The heat of the flame must "penetrate" and fuse without oxidation, under which condition union should be secured. Adhered welds are produced, for instance, when the operator fails to heat both sides of the joint evenly and fuse them with the welding rod. Often one side of the joint will be found soundly welded while the other side adheres in spots. Correct torch movement which directs the flame squarely upon the metal and heats the adjacent parts evenly to the melting temperature is one of the secrets of sound welding. Hence the importance of learning to handle the torch correctly in the beginning can hardly be overstated. Unless the welder secures penetration and cohesion his work is bound to be faulty. His training should concentrate on this point until he learns to recognize instinctively when the metal is blending under the flame.

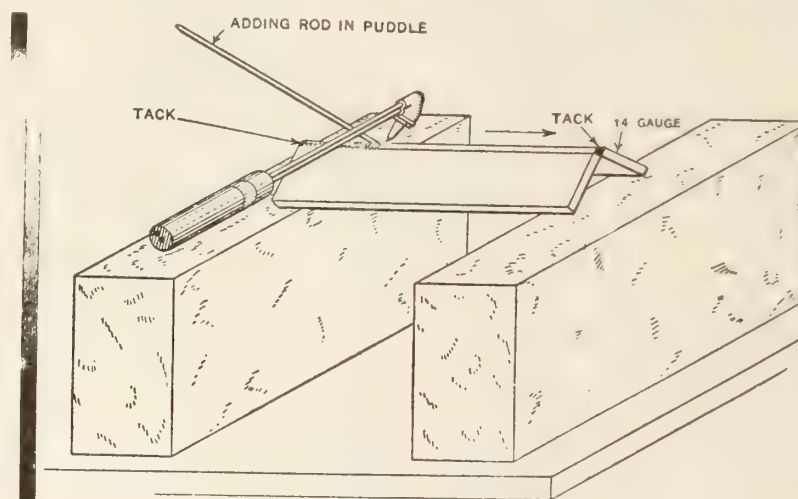
Proper Size of Tip and Flame

So much depends upon selection of tip and size of flame that the injunction is repeated that welders, especially beginners, should be governed by the table of tip numbers furnished with D-B equipment. Success or failure depends on the size of flame and this is governed by thickness of metal up to a certain limit.

If too small a tip for the joint is used the heat radiated will require that the flame must be held at one place so long that the metal will be oxidized before the weld can be accomplished. Furthermore, it will take much longer to make the weld, and require more gases to do the work than if the flame is of the proper size for the job.

Too large a flame is also objectionable because the operator will not be able to work the torch rapidly enough to place the molten metal before it is overheated. The correct size flame should reduce the metal to the molten condition of a width about equal to the thickness welded. Thus, if the metal is one half inch thick a No. 6 99 tip should be used in D-B style C welding torch, which should fuse a section of metal about one half inch wide. Of

(Continued on page 23)



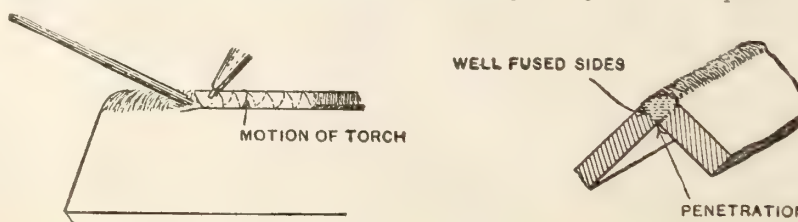
Making a Corner Weld in Thin Steel.

the welder works long enough and uses sufficient gas he may finally produce a weld, but only at higher cost than if preheated.

If the job is one that must be done in a hurry and the cost is of secondary importance it may, under some circumstances, be done without preheating in the conventional way, but only by using a large tip and burning much gas. Preheating is done, nevertheless, but with acetylene instead of the cheaper coke, charcoal or kerosene. Ordinarily all cast iron work of any importance, especially of considerable thickness, should be preheated to a low red. It will then weld easily and quickly.

flame may be swept over it and the parts adjacent several times to equalize internal stresses developed while the weld was being finished. When this is done the weld should be shielded to prevent rapid cooling. Asbestos paper is indispensable in the welding shop for preheating. Vulcanite asbestos is furnished to the trade in rolls, about 36 inches wide, and being easily shaped to any surface it may be used to good advantage when preheating, to take the place of sheet iron or brick. Several thicknesses may be required on large parts, depending on the size and situation.

Great care should be taken after welding heavy cast iron parts to pro-



Torch and Welding Rod Manipulation on Corner Weld.

BILLMONT WRENCHES

with Interchangeable Sockets

The "Master" Wrench

This wrench is a masterpiece among tools. With the strength of a pile driver, with its hooked nose and knurled hand grip, sliding handle, it is probably the most universal tool in the world.

No car, truck or tractor owner should be without one.

No farmer or mechanic should be without one. It is useful in every household.

This wrench gets in the most difficult places, where often you have to use a chisel and hammer to remove the nut. Hours of labor could be saved by having at hand the master wrench.

The Master Wrench is everybody's wrench, and with it comes an assortment of sockets up to 1". This Master Wrench, as well as the complete Billmont Wrench outfit, can be obtained at all good dealers.

Ball and spring in cap keeps handle in place. The solid "T" bar handle which slides back and forth, in order to pass any obstruction, gives tremendous power.

Ask your dealer or write us.

**Russell Gear &
Machine Co., Ltd.**

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← The Universal Billmont Nose-Piece

The nose, turned at an angle at the end of a long, straight shank, makes it possible to reach places that would otherwise be hard to get at. The outer tube is stationary and offers a firm grip. The universal nose piece takes sockets of all sizes.





Are You Selling the Most Widely Advertised Dry Batteries in the World?

The reputation gained by Columbia Dry Cells, through many years of severe and critical tests in actual use, as the source of ignition power for gasoline engines, tractors and farm power machines is sufficient reason for the confidence dealers feel in recommending them to their customers.

Columbia quality and sustained advertising keep Columbia Dry Cells foremost in the consumer's mind. Columbias are the best known Dry Batteries in the world. Are you taking full advantage of the profit opportunity Columbias afford.

Write to us for details on the full Columbia line.

Made in Canada

CANADIAN NATIONAL CARBON CO., LIMITED
MONTREAL TORONTO WINNIPEG VANCOUVER

Columbia Dry Batteries

—they last longer—

Dairy and Household Supplies

VALUE OF SAMPLE ROOM IN SELLING DAIRY EQUIPMENT

THE sample room is more than a place for displaying goods. It is the best place for making customers like your house, says *Harvester World*. You can give yourself wide range in arrangement of your cream separators and milking machines; you can profitably expend considerable effort to make the parts work with the greatest ease and appear in the most attractive way; you can decorate the walls and other parts of the room; you can go as far as you like in providing comforts for visitors in the way of chairs, tables for writing and reading, agricultural magazines and other conveniences.

There is a fine chance for you to develop your personality through your sample room and it is largely a matter of individual energy, as we have found that many dealers have gone a long way along the road toward the perfect sample room. To them further development of the good will idea in connection with the sample room comes with each year's experience. Long ago they recognized the value of sample machines properly displayed, of the investment value of the space devoted to this purpose, and the importance of a psychological peculiarity of the farmer who often makes up his mind to buy some article long before he translates that decision into action; and such dealers are our best reason for calling to the attention of others who may have neglected this important factor in success—the goodwill building value of the sample room when it is handled with the thought and time which it deserves.

Get your personality into your sample room and above all make it a hospitable place and a place customers will think of when they have a spare moment in town. What you do now toward furnishing up your sample room is likely to be reflected in a lessened buying resistance when you begin to intensify solicitation later on.

FOR CENTURIES MEN MILKED BY HAND

FROM the time before Christ up to 1910, A.D., farmers have straddled milk-stools, day after day, year after year. For centuries men had milked by hand. About a dozen or so years ago the advent of the mechanical milker made dairying no longer the same thing as a sentence to hard labor. The coming of the electrical milker marks the beginning of a new epoch in methods of milking; an epoch which agricultural economists will mark as a 20-year period in which greater progress was made in the perfecting of labor-saving devices for dairymen than in a period comprising all of the previous 2,000 years. It's high time such devices appear if progress in dairying is to be recorded. Why should a farmer wear himself out "pulling teats" any more than he should thresh grain with a flail or plow with a hooked stick?

The best makers of modern milking machines are well past the experimental stage. The milker is here to stay because time has proved it a necessity; a requirement needed in the plan for farm efficiency. To-day, in modern farming, the farmer who has used a good milker from two to eight years holds it as important a part of his farm equipment as any other of the modern farm implements and machines. It has been said that approximately two million cows are now milked morning and night by the use of mechanical milkers. And it is as safe to assume that the owners of these two million cows are no more likely to return to hand milking than they are likely to return to hand flails

or wooden bull-plows. With one of the old reliable makes of milking machines the farmer saves time, one operator with the machine can do the work of three hand milkers, the size of the herd can be increased, a more sanitary product produced and (vitally important in this age of modern production methods) the hardest and most disagreeable work practically eliminated.—Farm Implements and Tractors.

SOME DON'TS IN SEPARATOR OPERATION

DON'T wash the bowl housing or any part of a separator frame with a wet dish cloth. A dry cloth, or preferably one saturated with a little separator oil, will prevent the possibility of getting moisture into the gears and preserve the enamel on the frame.

Don't put wet, dripping tinware and bowl parts in supply can and replace it on frame with open faucet directly over the bowl spindle; it's apt to get moisture into the gearing and cause rust.

Don't flush a separator with scalding hot water; it cooks the milk solids on to the tinware instead of washing them off. Water a little warmer than new milk is preferable.

Don't remove the covers and stop the bowl after separating. The bowl and spindle may be injured by so doing—let it stop by itself.

Don't attempt to turn a separator until the oil chamber has been filled with separator oil. A separator may be ruined if permitted to run dry.

Don't wash cream separator tinware with any gritty scouring compound; it means ruin to the tin plating.

Don't assemble bowl parts until ready to separate.

Don't turn milk on until separator is up to speed.

Don't instal a separator in a basement if it can be avoided. Basements are usually damp. Better fix a separator room in some dry place.

Don't hammer the exposed threads on the tubular shaft if the bowl shell sticks after separating. Unscrew the bowl nut part way, hold it in the left hand and strike the nut on it with the palm of the hand. This method will prevent injury to the threads on the tubular shaft.

Don't start a new separator without first flushing the gears with kerosene.

MILKING MACHINES IMPROVE QUALITY OF MILK

CERTIFIED milk is being produced with milking machines, and also market milk of a good grade, under ordinary farm conditions. There is no short cut, however, to cleanliness; and neglected machines will not draw clean milk. To attain this objective, machines must be thoroughly washed and sterilized. The milking machine is sure to play a larger and larger part in the economics of dairying. For this reason it is important that care be taken in sanitation, so that nothing will impede its development.

A CORRECTION

IN THE December issue of M.T.I. we published figures in this column relating to the cream separator business in Canada for the year ending March, 1921. Our heading was "Value of Cream Separators Sold in Canada Last Year." The figures in the article were correct, but the heading was wrong. It should have read "Value of Cream Separators Produced and Imported."

One hand was all he used to steer,
The other arm hugged Myrtle.
They did a skid, and then oh, dear!
The beastly car turned turtle.—
Judge

Ontario Automotive Dealers Discuss Trade Problems at Annual Convention

(Continued from page 9)

"We've got to get up on our toes and go out and build business," he declared.

Wilfred Hodgins, president London and Middlesex Branch of the Automotive Dealers Association, gave a fine address on "Co-operation."

"Ask 'Em To Buy" Film Shown

At the close of the first day's session the film "Ask 'Em To Buy" was shown. It was also shown in the evening for the benefit of a number of salesmen, proprietors and mechanics of local garages who could not get to the afternoon session.

Committees appointed at this session were: Legislation—S. H. Rowed, London; G. R. Eaton, Orillia; I. F. Gillis, Ayr; C. A. Wiseman, Napanee. Resolutions—A. J. Gilmore, St. Catharines; W. H. K. il, Stratford; C. S. Whiting, Cannington; A. Robinson, Niagara Falls. Membership—W. Hodgins, London; George Grainger and Claude Pearce, Toronto. Frank McLaughlin, London, will conduct the question box.

The Service Problem

On the second day of the convention, Thursday, February 2, the sessions commenced at 10 a.m. The first subject discussed was "Conditions of the Retail Automobile Trade." S. Rowed of London opened the discussion. He said the dealers as a whole were making progress in gaining the confidence of their employees. Loyalty he said was only obtained by gaining the confidence of the entire staff. This confidence was just as necessary in garages with two or three employees as it is in larger establishments employing fifteen or more. The speaker also emphasized the necessity of dealers studying the personnel of their establishments with a view to ascertaining the peculiar fitness of each employee to his particular task. He said employers more and more would have to train their own men. Find out what they were best fitted for and put them to that job.

Mr. Rowed started one of the liveliest discussions by suggesting the establishment of an all sales store entirely divorced from repairs. He said he had given the idea considerable thought and saw no great objection to its being put into effect successfully.

This led to a lively discussion on service and its relation to sales.

One dealer said it was a vital mistake to pass up service. The dealer is responsible for the successful operation of the cars he sells and would be losing a valuable connection with his customers by turning his repairs over to another establishment.

Claude Pearce, Toronto, was of the opinion that sooner or later sales would be divorced from service. He thought also that the time was approaching rapidly when there would be no such thing as restricted or exclusive territory for the sale of any car.

Another dealer disagreed with Mr. Rowed's idea of a separate sales establishment, and said that service can in no manner be dissociated from sales. He thought the situation in the retail automobile trade would be improved greatly by larger commissions.

Mr. Rowed said there was no reason why a man couldn't be educated to look after his own car. He said there was too much free service given by the dealers and too much expected by the customer.

Theory Of Free Service Wrong

"Sell customers on doing their own small repairs," said Frank McLaughlin, London. He said he was not in favor of divorcing

service from sales, but thought the whole service question would bear considerable revision. He advocated the scrapping of the coupon system. There is no reason why a dealer should guarantee to perform any repairs over any period of time.

J. J. Duffus, the president, agreed with one of the speakers that larger commissions would improve matters considerably. He could not agree with Mr. Rowed that sales should be divorced from service, but he was firmly convinced the dealer should not give free service except on defective parts.

"The theory of free service is wrong," said J. R. Dixon, Ottawa, "no man can give something for nothing and remain in business. Customers should be made to understand, when a sale is made, that there is no warranty except the manufacturer's warranty covering defective parts. Free service only breeds carelessness on the part of customers," he declared.

Mr. Rowed moved that a committee be appointed to interview the manufacturers with a view to securing a larger and more uniform commission on cars. This was seconded by Mr. Dixon.

Luxury Tax Refund

J. R. Dixon, who reported for the committee on the luxury tax refund, stated that he had a meeting in the Premier's office on Wednesday, February 1, when the luxury tax refund was brought up. The committee had a very sympathetic hearing and a promise from the Government that something would be done to adjust the dealers' grievance.

The Outlook Is Good

T. A. Russell, General Manager of the Willys-Overland, addressed the convention on the outlook of the automobile industry. He reviewed the situation briefly and said that since 1914, notwithstanding the heavy drain of war loan subscriptions, the savings bank deposits in Canada had increased by about six hundred millions. He pointed out that this represented a great purchasing power and he was confident many cars would be sold during the coming year.

"We must stand together and let the public, in our advertising and sales talk, know that the prices of all companies have reached bottom," said Mr. Russell. "No other industry has got its prices down to as normal a level as the automotive industry." We are back actually to 1913-14 prices, and this means better value considering the improvements in cars. It is time to call a halt to instability and lack of confidence in prices."

Mr. Russell said there had been considerable discussion about the saturation point in the automobile market but he did not believe we have seen that point yet, nor likely to see it for some time. "It has been estimated," he said, "that the life of a car is five years. If that is so we should get a large volume of replacement business from the cars sold in 1917. A large number of cars due for replacement last year, were not replaced. This business also should be available during the present year," he declared.

F. I. Fox, Toronto, manager for the Ford Motor Co. of Canada, also spoke to the convention. "I do not for a moment think that 1922 will be a bad year," he said, "we feel that it will be a good one; that more cars will be sold. Things have steadied down, and you should be able to go out and tell the public your prices are down as far as they can go."

Used Car Situation

The used car situation next came up for discussion. Mr. Claude Pearce was

of the opinion that the used car business should be separate and distinct from the new car business, owing to the narrow margin of profit and the necessity of close valuation.

J. R. Marlow disagreed with Mr. Pearce about the used car business being separate from the new car business. He said that dealers will always be faced with the necessity of buying used cars when selling new ones. The price was the controlling factor in buying and selling used cars. In his opinion the dealers have themselves to blame for the present used car situation.

Dealer Should Buy 'Em

"There is no mystery about handling used cars," he said, "it is purely a matter of common sense." No dealer should permit the owner to sell the car to him, it is the dealer's job to buy the car, he declared. Dealers have been prone to allow prices for "trade-ins" which they knew they could not put in shape and sell at a bargain with profit to themselves. Used cars must be sold at a bargain, declared the speaker, and in order to do this they must be bought at a low enough figure to permit them being put into usable condition.

G. A. Kingston, Commissioner of the Workmen's Compensation Board, gave valuable explanations as to the working of the act in regard to the various phases of the automobile industry.

Mayor Maguire Gives Welcome

Mayor Maguire, who was scheduled to speak at the opening session on the first day but owing to pressure of his official duties was unable to appear, addressed the convention on the afternoon of the second day. He spoke briefly, welcoming the delegation to the city and suggesting a closer co-operation between dealers and the police department in keeping a check on the purchasers of used cars, in case of their use in connection with crime.

R. H. Spurr, of the Imperial Oil Co., also addressed the delegates on the "Gasoline Situation."

A large number of resolutions were passed, relating to the Transient Traders' Act, which it is desired to make more specific, to hawkers and peddlers, whom the association wants licensed; to manufacturers' price lists; protection of the retail trade in the matter of proposed legislation for manufacturers' liens; opposition to any eight-hour day legislation applying to retail trade; protection from the application of the Workmen's Compensation Act to the retail trade; greater police protection of retail trade from thefts; protection of dealers from more restrictive by-laws of municipalities; opposition to any attempt to investigate retail dealers' profits by Government as in the United States; urging more effective attention to the smuggling evil; recommending that some way be found to eliminate the duplication of efforts in collecting Federal, Provincial and municipal income taxes; recommending that cases of fraudulent advertising be submitted to the Secretary of the board for action; favoring the action of the Dominion board in the matter of investigating mail houses using the mails at a cost less than service; protection of retail trade's interests in matter of telephone rates; asking that manufacturers mark their goods "firsts" and "seconds"; asking that all rulings made by Governmental departments be in writing and in conformance with the act; expressing hope that freight rates be reduced.

Many of these were endorsement of actions on the part of the Dominion Board of the Retail Merchants' Association, and were left to the incoming Executive of the automotive section for disposal.

The board of officers for 1921 was re-elected for the ensuing year. They are: President, J. J. Duffus, Peterboro'; First Vice-President, S. Pink, Ottawa; Second Vice-President, L. Copeland, Windsor; Third Vice-President, A. McDonald, Stratford; Secretary, W. C. Miller, Toronto; Treasurer, Frank McLaughlin, London.

Learning To Weld

(Continued from page 20)

course, the relation is not carried out for very heavy sections but as these are—or should be—preheated, the work of the torch is made easier.

When welding heavy metal be careful not to blow molten metal on to "cold" metal as the result will be adhesions and not welds. Should the metal adhere accidentally the torch should be applied until thorough penetration and cohesion has been effected.

Welding Speeds

Expert operators have welded steel plate one half inch thick at the rate of 3 feet per hour, and some cases higher speeds have been accomplished on even thicker metal. These are not average speeds, however, and in general the welding rate on one half inch plate may be conservatively put at one and one half feet per hour. When the weld is considerably reinforced, as is the practice of concerns welding tanks and pressure containers, the welding speed may drop to one and one quarter feet per hour, or even to an average of about one foot. Steel plates one quarter inch have been welded at the rate of 15 feet per hour. Much higher welding speeds are possible on thin sheets, 30 feet per hour not being unusual for the light weight gauges.

Testing Welds

Beginners will learn much by breaking practice welds apart and closely examining the weld structure. They will be surprised to learn how faulty a weld may be that appeared smooth and sound before broken. A simple way of testing is holding in a vise just below the weld and breaking it with blows of a hammer. The presence of trapped oxide and adhesions will be almost invariably shown in first efforts. Repetition will give practice and result in rapid improvement, as the welder then realizes how important it is to follow the approved torch method.

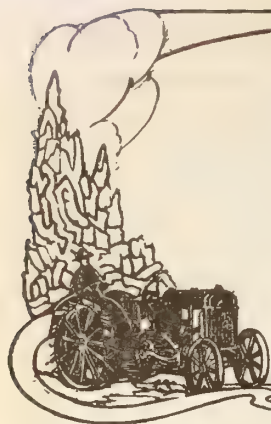
The importance of weld tests can hardly be exaggerated for nothing appears to stimulate the average welder as much as the discovery that his previous efforts produced poor results. The D.B. Institute has installed a 100,000-pound Riehle testing machine for pulling test bars apart, and all students are required to weld steel test bars 2 inches wide and one half inch thick until able to make welds of from 85 to 90 per cent. full strength, without reinforcement.

The vise-and-hammer test is also used to determine bending strength and to disclose defects, especially in the early stages of the course.

The structure of a weld may be made to stand out clearly by sawing across a welded joint, filing or grinding smooth, polishing and etching. Adhesions are thus shown by sharply defined lines between the adding material and the parent metal, whereas a cohered joint shows faintly defined lines and evidence of interlocking. A perfect cast iron weld should show no line between the weld and parent metal when broken but when polished and etched the slight differences in structure generally can be seen plainly.

MAKE YOUR OWN PRESSURE TANK

A PORTABLE AIR pressure tank in the garage is a great help and now practically indispensable in the busy garage. The expense incurred in purchasing such a machine is often more than the small repairman can afford. Here is an idea which will help the garageman to make his own at a comparatively small cost. The principal expense is the tank. For this secure a small tank about 12 inches in diameter and about 3 feet long. Mount the tank on a small coaster wagon, or "Kiddie Kar". Cut out both the front and rear ends of the box to conform to the curve of the tank. A small rod, threaded at both ends and run through holes in the wagon box, holds this in place. A strip of strong iron placed across the under side of the box with the nuts in place, holds the tank rigid.



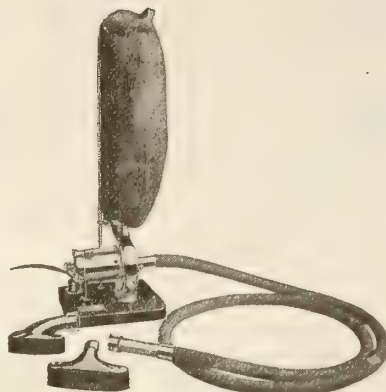
Automotive Accessories and Implement Equipment



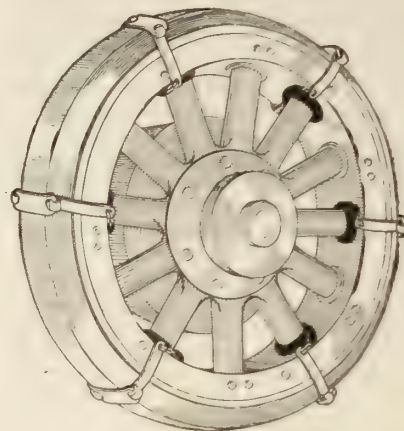
DUMORE UPHOLSTERY CLEANER

THE DUMORE has been designed and built for cleaning upholstery of closed cars. It is portable—easily carried about and convenient to operate. When in use it is placed on the ground outside of the car, away from the operator, and not interfering with his work. Attached to the flexible hose is a swivel hand-grip and nozzle. This construction permits freedom of motion at odd angles, regardless of how much the hose is twisted about. The brushes are of China bristles.

The cleaner is equipped with a DUMORE universal motor operating on either direct or alternating current. The base is of hard wood with an ebony finish. 10 ft. special reinforced vacuum cleaner hose, 25 ft. portable cord and attachment plug are furnished. Made by the Wisconsin Electric Company.



Dumore Upholstery Cleaner



Easyon and Double-Grip Tire Chains

newable. By removing four screws the complete switch mechanism and motor commutator may be uncovered. The armature bearing is carried in a spider integral with the motor case. The flexible cable which supplies the power is attached to screw terminals on the switch block. Made by the Black and Decker Mfg. Co.

PRESTO STOP SIGNAL AND LAMP

THE METAL Specialties Mfg. Co., Chicago, are manufacturing the Presto combination stop signal, traffic and parking lamp.

It is described as having four distinct features of actual merit and necessity to the driver as well as to the traffic officer. Namely: a bright day and night signal, showing the word "stop," which indicates that the driver of the car is about to stop, turn or slow up for some reason or other. A white parking light, which is always necessary when parking at night; operated by setting the emergency brake; a white forward traffic signal, which is necessary and a great help to the traffic officer, so that he knows you are obeying his signal to stop.

The signals are controlled by an automobile electric switch, operated by the foot brake. The device is in black enamel, with nickel-plated rim, complete with bulb, switch and fifteen feet of wire, ready for attaching. It has a universal bracket; is adaptable to all cars; the operation is automatic; is quickly installed.

The makers add that the Presto Lamp, placed on the rear left-hand fender of the car, throws a small white light forward and red light to the rear when the car is parked, so that the owner may turn out his head lights and tail lights. It flashes on and off with stop signal; and in so doing, it throws a light on the left front fender, visible to the driver, which notifies him that his stop signal is working.

EASYON AND DOUBLE-GRIP TIRE CHAINS

THE CROSS members of these chains have a rounded, smooth surface next to the tire to prevent injury to the rubber. They vary in width from 1 to 2 in., but are comparatively thin to prevent bumping. When the wheels begin to slip, the chain slips up so as to dig into the road. The Easyon type is fastened to the spokes with leather covered fasteners and the Double-Grip chains have a circular side chain on each side, the ends of which are connected together with a lever fastened to pull the chain tight. Manufactured by Woodworth Specialties Co.

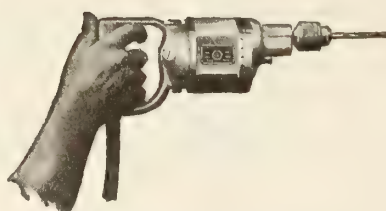
AUTOQUIP FUEL FRACTIONATER

THE AUTOQUIP Fuel Fractionater is composed of three units. It is installed by detaching the manifold from the cylinder block, and placing units one and two against the cylinder block (see illustration.) The manifold is then put back in place and unit three attached over the intake manifold. The device, it is claimed, breaks up the fuel particles in two ways: First, the pressure vacuum created by the spiral blades; second, these blades are heated by the exhaust flames to a high temperature, thus vaporizing the fuel globules that come into contact with them. Manufactured by the Autoquip Mfg. Co.

STORM MOTOR DRIVEN REBORING MACHINE

THE STORM motor driven type M reboring machine was designed to meet the requirements of the average sized garage. It is also furnished for operating with drill press or with portable electric drill or pulley for belt drive. This machine uses multiple cutter heads, supported by rigid, hardened steel bar, and ground to size. The bar, in turn, is supported by heavy bearings, which are adjustable. Cut gears are used throughout, with internal feed screw. The total capacity is 2½ to 6 in.

A heavy base is provided making it a permanent shop fixture. The machine can be furnished for boring only or for boring and burnishing. Manufactured by the Storm Mfg. Co.



Black & Decker Light Quarter-Inch Drill



Greb Automatic Extractor

GREB AUTOMATIC EXTRACTOR

THE DEVICE is for removing inside races, caps, bearings, bearing sleeves, bushings, etc. It is in two sizes and consists of a crosshead carrying a screw and supported by two legs or braces. Upon the end of the screw is swiveled another crosshead which in turn carries two long fingers that are hooked at the end. Between these fingers is a movable wedge. When a bearing is to be removed the extractor is placed in position and the wedge and fingers inserted into the bushing as far as it will go, then the wedge is drawn up between the fingers until the hooks are tightened in the bushing, after this it is a simple matter to draw the bushing out by screwing up the nut on the main screw. Made by Greb Co.

B. AND D. LIGHT QUARTER INCH DRILL

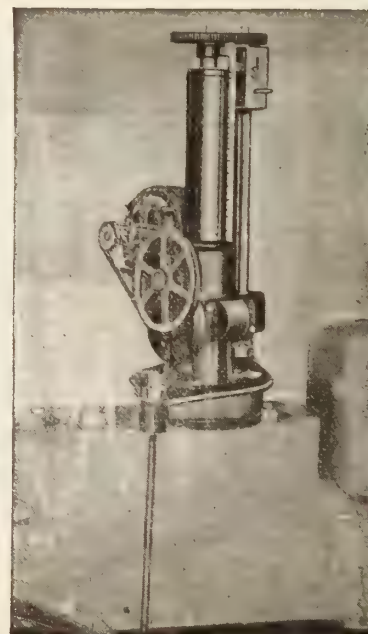
THE LIGHT drill has been developed to correspond to the rest of the Black and Decker portable electric drills. The housing of the new drill is made of aluminum alloy. The motor is powerful and is insulated. It is air cooled. The gears are double reduction and are made of chrome nickel steel. They are of the stub tooth type, and are heat treated. The gears run in a grease tight gear box, similar to an automobile transmission. The drill spindle is also made from chrome nickel steel.

The pistol grip and trigger switch control is used.

All bearings are removable and re-



Presto Stop Signal



Storm Reboring Machine

"The car may break but the wheels will not"



THE KEMP METAL AUTO WHEEL

The Kemp Metal Auto Wheel provided what was perhaps the greatest sensation of the show at Detroit last month. Engineers, manufacturers and executives paid repeated visits to the Kemp Wheel booth, asked all manner of questions, studied the construction of the wheel, and united in giving it unstinted praise. They say the Kemp Metal Wheel is in a class by itself and will prove a sensational seller.

Several auto show managers approached us and requested us to show our wonderful wheel as a feature in their cities. So watch for further show announcements.

The Kemp Metal Auto Wheel Company Limited

122 Richmond Street, West,
TORONTO

Isn't that a wonderful guarantee of safety to give your customer?

From the standpoint of his own personal safety and that of his family when driving each one of your customers is interested in Kemp Metal Auto Wheels. The general use of Kemp Metal Wheels on all makes of cars will contribute more than any other agency towards the elimination of the hundreds of serious and fatal accidents due to collapsing wheels.

When you have outfitted a car with Kemp Metal Wheels you have guaranteed your customer against all such accidents. You have provided wheels that are to all intents and purposes indestructible—that will stand up under a vertical or side pressure several times as severe as can be withstood by any other wheel. A pair of Kemp Metal Auto Wheels fitted on an axle were subjected to severe vertical pressure as a test of their resistance to strain. Although the pressure was sufficient to bend the axle until it touched the floor the only effect on the wheels was to put the rims slightly out of alignment. Immediately the pressure was removed the wheels sprang back to their original shape. Any other wheel would have been a complete wreck under such pressure.

In appearance the Kemp Metal Auto Wheel resembles very closely the wood artillery wheel. It is cheaper though and infinitely stronger. The spokes are metal die cast tubes of a special steel of unusual density and hardness. The spokes are firmly held by compression, they are not weakened by having pins, bolts or rivets pass through the ends nor by threaded ends. In addition they are so mounted as to give considerable resilience to the wheel without rattling or springing the rim or felloe band. The result is a wheel of medium weight, fine appearance, almost unlimited strength—at a lower price than a wood wheel.

See these wheels at the motor show, Montreal,
February 25th to March 5th.

Write for Particulars of Agency Proposition.

Dominion Truck Equipment Company, Limited

Manufacturers
Trailer Hoists, Dump Bodies
and Truck Units

Kitchener : Ontario

Truck by trailer and reduce
hauling costs.

GASOLINE MOTORS \$50.00 and up 4 CYLINDER—4 CYCLE

20 horsepower and up, these motors are taken from high-priced automobiles, and can be used for any purpose where power is required. Hundreds of these motors in use all over Canada are giving satisfaction in motor boats, tractors, cutting boxes, sawing wood, running machinery, etc. We also carry the largest stock in Canada of slightly used parts for motor cars of all kinds.

Satisfaction or refund in full, our motto.

Shaw's Auto Salvage Part Supply
927-31 Dufferin Street
TORONTO

I Want a Partner

In my Automobile and Garage Business. Too much business for me to handle alone. Good town; good prospects; good opportunity for right man. Write me for full particulars.

HECTOR E. ROY

Warren, Ontario

Hart-Parr 12-25 Tractor

and a

3-14 in. Oliver Gang Plow
that plowed 100 acres

PRICE: \$1000.00 Complete

Our New 6 h. p. Capital Gasoline
Engine, \$100.00.

New Cord Weed Saw Frames with
Ripping Table, \$20.00.

All sizes Gasoline and Oil Engines—new
and second hand

C. DISSINGER & BRO.
Wrightsville, - - Penna.

Dealers, Attention!

Get our proposition on

Portable Saw-Mills,

Gang and Single Edgers

Gasoline and Kerosene
Engines

Emery-Grinders

Water Bowls,

Plow-points, Etc.

GRAY IRON AND BRASS
CASTINGS

**The Cochrane Foundry
and Machine Works**

TILLSONBURG :: ONT.

NEWS—OF THE TRADE FOR THE TRADE

ALBERTA

EDMONTON:—The Spotlight Garage is a new business opened here.

MUNDARE:—F. Woytkin has purchased the automobile business formerly conducted by Smart and Nelson.

CALGARY:—The proprietors of the Julien Garage, 331 Twenty-Fifth Avenue, west, have installed an up-to-date gasoline pump and free air service.

CALGARY:—S. Downing, well known in the automobile trade in Calgary, was recently appointed manager of the repair department in Woodley's Garage.

CALGARY:—The Southard Motor Sales Co., have removed to the premises formerly occupied by Maclin Motors, at the corner of Fifteenth Avenue and First Street, east.

EDMONTON:—New show rooms have been opened by the "Motordrome" in the La Fleche block, 102nd street. Motordrome Ltd., have recently been appointed distributors for Studebaker cars. They are also agents for Maxwell and Chalmers cars. J. Coulter is in charge of the service department and R. E. McKay will direct sales.

BRITISH COLUMBIA

NEW WESTMINSTER:—W. Hendry and T. Ryan, of Tacoma, Washington, U. S. A. contemplate the erection of a factory at a cost of \$9,000 for the purpose of manufacturing automotive equipment.

MANITOBA

WINNIPEG:—The Kipp-Kelly Co. have been incorporated to do general repair work.

ST. BONIFACE:—The Imperial Oil Co., contemplate the erection of a filling station here.

ROLAND:—An automobile and tractor repair business has been opened here by E. Ford.

CYPRESS RIVER:—A. G. Johnson has bought the automobile business formerly conducted by Cannons and Brynjsson.

MARITIMES

HALIFAX:—The Stewart Motor Co., have been appointed agents for the Dodge car. The territory includes Halifax City and County.

MIDDLETON, N.S.:—E. Eldridge recently moved into his new garage, having purchased various modern equipment, among which is a Fairbanks-Morse battery charging set.

DIGBY, N.S.:—G. Morehouse, who last July had his garage destroyed by fire, is now located in his new fire proof garage. He has installed a full line of modern equipment which will enable him to handle every phase of automobile repair.

HALIFAX:—The Maritime Cylinder Grinding Co. are opening a shop on Salter street. They will specialize in regrinding automobile and marine motor cylinders, and fitting new pistons and rings. The latest type of grinder is being installed.

ONTARIO

WHITBY:—W. Davidson will erect a new garage at a cost of \$8,000.

TIMMINS:—D. Laprairie has opened an implement, hardware and feed store here.

KITCHENER:—Kitchener Motor Sales Co., King street east, plan to erect a garage at a cost of \$20,000.

TORONTO:—W. C. J. Hockin, who has been connected with the sales organization of the Chapman Double Ball Bearing Co., Toronto, for fourteen

years, has been appointed sales manager for the Riverdale Garage, Toronto.

KINGSTON:—Suddaby Bros. have added a storage battery service to their tire and vulcanizing business.

OTTAWA:—M. R. Mulligan has been appointed sales manager of the Used Car Department of J. G. McGuire, Ltd.

PICTON:—H. G. Blackely has been appointed the local agent for the International Harvester Co. He carries a full line.

TORONTO:—A new garage at a cost of \$50,000 will be erected by the Automobile Service Syndicate, 21 Dundas street, east.

HAMILTON:—The Oldsmobile Garage, of 99 Bay street north, has inaugurated the flat-rate system of charging for repairs.

KITCHENER:—The erection of a new garage at a cost of \$30,000 is contemplated by the City Garage. R. Kleinschmidt is the manager.

STRATFORD:—G. Lyotess will open a new garage business here about February 1. He will handle a line of cars, and specialize on repairs and storage.

WINDSOR:—R. L. Howitt, proprietor of the Howitt Battery Service, recently secured the agency for U. S. L. batteries for the counties of Essex, Kent and Lambton.

HAVELOCK:—J. C. Buchanan has purchased the garage business formerly conducted by R. McCutcheon and Son. He has the agency for Chevrolet cars and handles all kinds of repairs.

WOODROFFE:—The gasoline filling station operated by H. Illingworth, was destroyed by fire recently. The damage is estimated at about \$9,000, partly covered by insurance.

OTTAWA:—Beach motors have bought property at the southeast corner of Catherine and Bank streets and will in the near future erect a new garage. The building will have a frontage of 133 feet.

LINDSAY:—A representative of the Birmingham Motors, of Canada, Peterboro, Ont., visited here recently looking into the possibility of securing a firm to manufacture the bodies for the new "Birmingham."

OTTAWA:—Beach Motors announce the appointment of C. F. Gervan as head of the sales force. Mr. Gervan has been connected with the automobile trade for some years. He saw service overseas with the Royal Flying Corps.

ST. THOMAS:—Motor busses to supplement the present car service are to be tried out here. An enterprising local dealer has offered the street railway department the use of a large bus for one month free of cost. There is a probability of the bus superseding the street car here.

PETERBORO:—J. J. Duffus, proprietor of Duffus Motor Sales, entertained sixteen members of the automotive section of the Retail Merchants Association, to dinner at the Empress Hotel recently. After the dinner this group joined a general meeting of the R. M. A. which was held in the Chamber of Commerce rooms.

QUEBEC

MONTREAL:—E. A. Martin, formerly of Winnipeg, has secured the general agency for the province of Quebec, for the Royal Six car, manufactured by the Parker Motor Car Co.

SASKATCHEWAN

REGINA:—Broad Street Garage has been purchased by K. Kravoski.

STOUGHTON:—Allen and Young have sold out their automobile business to H. Ogden.

With the Manufacturers

The General Motors of Canada are said to be exporting an average of 100 cars per day.

The plant of the Ford Motor Co., of Canada is operating on a five-days-a-week basis.

It is announced that the Massey-Harris Co., have 624 employees now on the payroll at the Brantford plant.

The Cockshutt Plow Co., have taken over the sale of Premier cream separators in Ontario, west of Peterboro.

The Sawyer-Massey Co., Hamilton, Ont., since the first of the year, have taken on over one hundred additional men.

G. W. McLaughlin, vice-president of General Motors, of Canada, has been made a director of the National Trust Corp.

Earl Marshall, of Stratford, has been appointed divisional sales manager of the Gary Motor Truck Co., Toronto.

F. J. Wolfe, general sales manager in the Toronto office of the Imperial Oil, has been elected to the board of directors of that company.

The Gary Motor Truck Corporation, Toronto, have secured new orders and it is anticipated the plant will be in full swing by the end of February.

The Ruggles Motor Truck Co. recently announced the appointment of Arthur J. Scanlon as district sales manager for the province of Quebec.

The Westinghouse Electric Mfg. Co., East Pittsburgh, Pa., have just issued a circular reprint, No. 104, in which babbitting of motor bearings is described.

The Verity Plow Co. announced on January 12 that they were taking on from 50 to 100 additional men. The company have had a hundred men employed for some time.

George Baldwin Seldon, inventor of the first gasoline-propelled vehicle, and a pioneer in the automotive industry, died at his home in Rochester, N. Y., in his seventy-seventh year.

W. R. Burgin, transportation manager of the Ford Motor Co. of Canada, addressed the junior Chamber of Commerce of Windsor, Ont., recently. Mr. Burgin spoke on transportation conditions in the Border Cities.

Spontaneous combustion caused an outburst of flames in a heap of oily rags recently in the washroom of the Oldsmobile department of the General Motors, of Canada, Oshawa. The flames were extinguished before much damage could be done.

A. H. Nordyke, formerly president of the Nordyke & Marmon Company, of Indianapolis, passed away at his home in that city recently. Death came as the result of heart trouble brought on by a recent attack of pneumonia. He retired from the Nordyke and Marmon Company about 1902, before it began the manufacture of automobiles. He was 83 at the time of his death.

B. B. Wickey, of East Chicago, Ind., has moved to Los Angeles, where he will establish a factory for the manufacture of the Wickey semi-dry, non-freezable and rechargeable storage batteries, at present being manufactured by the Wickey Battery Company at East Chicago, with an output of 500 daily. The plant proposed for Los Angeles will have an initial capacity of 100 batteries a day, but sufficient ground will be secured for extensions of the plant as rapidly as business warrants. The capital for the new enterprise will be furnished by the Wickey interests and the plant will be operated by them.

WILL 1922 SEE PEAK OF GASOLINE PRICES?

Expert Thinks Petroleum Prices During 1921 Were Too Low—Will Gradually Tend Higher

"THERE is plenty of petroleum, and always will be. Exhaustion of the world's supply is a bugaboo. In my opinion, it has no place in practical discussions. The great question we are confronting is this: Is America willing to pay the price for an adequate share of the world's supply?" said Harry F. Sinclair, chairman of the board of directors, Sinclair Consolidated Oil Corporation, at the annual meeting of the American Petroleum Institute, at the Congress Hotel in Chicago.

"When I say that 'America must pay the price' I refer not merely to market quotations for gasoline, lubricating oil and other petroleum products, and yet as these quotations are of fundamental importance, it may be well to treat them at once.

"Petroleum prices in 1921 on an average have been too low. In my opinion they will average much higher in 1922 than in 1921, and may average higher than ever before in the history of petroleum.

"Taking a longer view, I am confident that petroleum prices must gradually work higher. Naturally, there will be periods of depression, but in the long run petroleum will command prices which more nearly reflect its service value."

NATIONAL TRACTOR SHOW OPENS

THE NATIONAL Tractor Show is being held this year at Minneapolis, Minn., February 6 to 11, at the Minnesota State Fair Grounds. It is expected to prove the biggest exhibition of power farming machinery ever housed under one roof, with people from all the northwest in attendance.

The educational aspect of power farming is to be strongly emphasized at this exhibition. Prominent speakers from all over the country have been secured to deliver instructive lectures and the farm engineering department from the Minnesota College of Agriculture is putting on a special short course for the benefit of the show visitors.

The number of new machines exhibited is not very large, the efforts of manufacturers having gone mainly into the refinement of present existing models that have proved satisfactory. In addition to tractors there will be exhibitions of motor trucks, lighting plants and other items of farm power equipment. Every farmer will find much of value at the exhibition.

DEMAND FOR TRUCKS IN BORNEO

THE British Chamber of Commerce for the Netherlands East Indies reports in Eastern Engineering that, as a result of the rapid development of Northeast Borneo, the volume of freight is growing. Several good roads have been constructed and the projected railway from Pontianak to Sambas will afford very much needed transport facilities. The market, actual and potential, for commercial motor vehicles is particularly worthy of exploitation, and it is stated that there is an ever-present demand in Northwest Borneo for the 3 to 5 ton type of vehicle. The projected railway can hardly absorb all the traffic which now uses the roads, and the estates will require transport for their produce to the nearest railway. The making of good roads and the facilities with which motor trucks can handle plantation produce have already led to a rapid increase in the numbers of commercial vehicles used.



BURD

High Compression PISTON RINGS

The World's Standard of Efficiency

permanent efficiency, therefore give better service efficiency—maximum power at the lowest expense for gasoline and oil—and prolong the life of the motor by keeping it clean and free from carbon. They are unequalled for lasting resiliency and permanent efficiency, therefore give better service at the end of six months than when first installed.

Backed By This Guarantee

Every Burd High Compression Piston Ring is Guaranteed to be free from defects in material and workmanship—and warranted to give more power, with less fuel consumption, than any other piston ring—when installed in cylinders that have not been warped or scored—or your money will be refunded after thirty days' use.

For sale by jobbers everywhere.

BURD RING SALES COMPANY of CANADA
322 McIntyre Block, Winnipeg, Man.
Burd High Compression Ring Co.,
Rockford, Ill., U. S. A.

McQuay-Norris Piston Rings



Leak-Proof Piston Rings
Superoyl Piston Rings
Jiffy-Grip Piston Rings
Step Cut Piston Rings

Complete Stock Carried at all Times.
Immediate Shipment of Orders

Keyes Supply Company, Limited

Wholesale Automotive Equipment

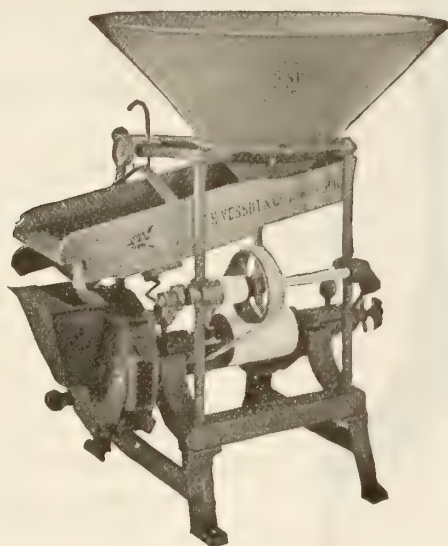
OTTAWA

ONTARIO

"Vessot" Feed Grinders

not only have proven satisfactory

in every respect but have created and maintained an enviable reputation for the dealers who have sold them. They will build up your trade and standing too.



Simple in design, sturdy in construction, easiest to adjust and operate, and equipped with the very best grinding plates made.

The "Vessot" is easy to sell, most farmers are looking for the "S.V." Sign of Value on the plates of the grinder they purchase.

A substantial reduction in price, effective September 29, 1921, makes them the most economical investment in feed grinders.



A Brisk Trade or A Dull Trade

this year lies with the dealer, if he combines sensible efforts with a good and well-known line, he cannot fail to come out ahead in the race for business—but—should he not have the merchandise his road is going to be so much harder and perhaps result in "dull trade."

Work your prospects, get them interested in grinders, show them the "Vessot" line and combine this with a degree of optimism—you can't go wrong.

"Get acquainted with the 'Vessot' line"

INVENTED AND MANUFACTURED BY

S. Vessot & Co., Joliette, Quebec

Sold exclusively in Canada by

International Harvester Co. of Canada, Limited

Branches: Calgary, Edmonton, Lethbridge, North Battleford, Regina, Saskatoon, Estevan, Yorkton, Brandon, Winnipeg, London, Hamilton, Ottawa, Montreal, Quebec, St. John.

New Machine Destroys Weeds, Insects and Prepares Seed Bed in One Operation

ONE sweep across the field with the machine recently invented by E. C. Graves of Kankakee, Ill., will burn up weeds, insects, weed seeds and everything of a vegetable or animal nature that can eat up the farmer's hard earned revenue. Not only that, but the machine will pulverize the soil and leave an excellent seed bed ready for the planter or drill.

The machine, according to engineers, is considered the most revolutionary farm implement invented since the grain binder. Its principal feature, which makes it entirely different from any other farm implement that has ever been invented, is an insulated furnace hood in which oil burners are installed to generate an intense heat which consumes all the vegetation and insects including the larvae and seeds.

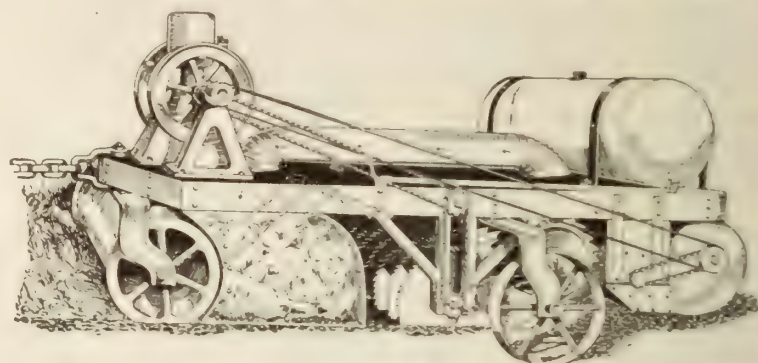
Farmers of this continent are contributing millions of dollars annually to the insect and weed pests, and up-to-date there has not appeared on the market, a machine that will effectually stamp these pests out. What wouldn't the average farmer in Ontario give to get rid of sow thistle or quack grass, or any of the other pests that grow and spread through underground root stems? And how about the tumbling mustard and Russian thistles in the west, to say nothing of the cut-

combined all the elements which make the machine a thorough and economical once-over proposition.

The capacity of the machine is 40 inches in width, and it will easily cover eight acres a day. In an unusually small field it can be turned in a 12 foot circle as it is only 10 feet in length, and thus it is readily adaptable to smaller farms, and for garden use.

Mr. Graves has not yet gotten into production on this machine, but is negotiating now for its manufacture. It has had a hearty welcome among implement men and farmers, and its success is assured if it will do all Mr. Graves claims for it. And there appears to be no reason why it should not perform as he says it will. It has gone through the patent office and patents have been issued.

Mr. Graves formerly farmed in Saskatchewan and knows something about western conditions. His machine would be in great demand in the west, as well as in the east, but especially in the prairie sections where frequent high winds carry the weed seeds for miles. It would also be very effective in combating the insect pests which all demand their full pound of flesh. It will be interesting to watch developments on this new device.



This machine destroys weeds, insects and prepares seed bed in one operation.

worms, army worms and grasshoppers?

A small gas engine is mounted on the machine, so that all the mechanism is operated independent of the draw-bar power. This guarantees a complete unit and avoids choking up complications, an engineering point that will be instantly recognized as essential to successful operation. To subdue and eliminate rank growths of vegetable matter, a roller at the front end of the machine crushes this to the surface, following which is the insulated hood which controls the flames from the oil burners, and engages in the soil so that the flames cannot spread, also making possible a higher degree of heat. This instantly cremates all vegetation, or subjects it to such intense heat that the germination of any seeds or plants or insect life is made impossible.

Following this a closely set gang of saws cuts the soil and the roots of vegetation into strips or ribbons, loosening it up so that the forward motion of the machine carries it up an incline to a spiral horizontal cutter resembling a lawn mower. This further reduces the length of the roots and partially separates them from the soil at the same time by a centrifugal motion, and the speed at which it is driven carries it up and back onto a double set of sieves, which finish the pulverizing and separating under the pressure of an air fan. The fan blows all this refuse back up into the hood, where it goes through the furnace a second time and it is consumed. It also thoroughly aerates the soil, which is then redistributed in the field, finely pulverized like a garden bed and free from all contamination of both foul weeds and insect life. Thus are

POWER ON THE FARM

EVERY INTELLIGENT presentation of the farm power problem is presented in a recent issue of the "New England Farmer" by G. B. Ayers. Among the points which he brings up are the following:

1. The "ready to serve" expense of mechanical power is much less than with horse power.

2. Mechanical power has passed the experimental stage, as indicated by the fact that in seven of the corn belt states twelve out of every 100 farms have a tractor. In all probability the percentage will be largely increased during the next decade.

3. The demand for horses for farm power is so small that only ten states produce more than they use at the present. The states south of the Ohio River, east of the Mississippi, together with Arkansas and Louisiana raise less than one-fourth of the work animals that they use. It is the demand from these states which even today gives the corn belt farmer enough for his mule colts to give the horse some argument. What if this demand suddenly were removed?

4. The cost of the horse both in purchase price and upkeep will be his own death warrant. Analysis of figures indicate that horses are disappearing. In 1921, 80 per cent. of the horses in this country were 12 years of age or older.

5. The gradual translocation of population from rural districts to the city means a constant increasing per capita production on the part of the farmer. This in turn means either greater efficiency or greater acreage, and both mean greater use of mechanical power.



The Famous "Waterloo Boy"

12 H. P. on draw-bar; 25 H. P. on belt

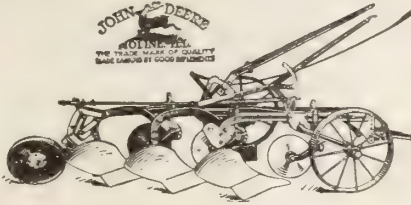
THE POWER END

we believe to be the most practical, economical and reliable farm tractor yet designed. Six years of uniform success in giving real service has demonstrated this in the most emphatic way. It is a three-plow tractor—the handiest size of all for any size of farm. Burns kerosene with no draw-back because a special manifold, built to gasify the kerosene, converts the fuel into the proper condition for complete combustion. All the fuel is converted into power. The spark plugs are not fouled, the cylinders remain free from carbon and the lubricating oil is undiluted.

A Great Tractor-Plow Combination

The Business End

of the combine, however, is the John Deere tractor-plow, equipped with genuine John Deere bottoms that are shaped to scour, turn and deal with the soil to the best advantage. The simple positive power lift insures a quick and high lift from the soil. No trouble from trash gathering when transporting or turning at the ends. Extra heavy beams of special John Deere steel are guaranteed not to bend or break.



John Deere No. 5 Tractor Plow

You can't start the new year with greater prospects than by getting in touch with the John Deere line. It makes the farm and consequently the dealer's job a big paying business.

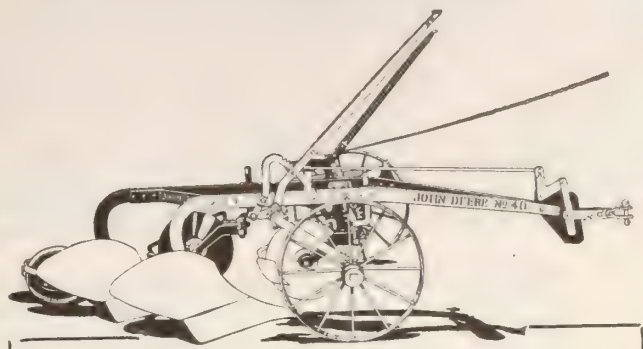
John Deere Mfg. Co., Limited

Welland



Ontario

All John Deere Plows equipped with Ontario all-steel bottoms.



John Deere No. 40 Tractor Plow

Designed and built for the Fordson Tractor

"No. 40" has important built-for-the-Fordson features possessed by no competitive plow.

NOTE the self-adjusting hitch, no other plow has it. With this the plow automatically maintains the correct line of draft as depth of plowing is varied. Bottoms run true and have the right suction at all times—no "nosing in" or "hopping out" of the soil. The clevis fluxes up and down, permitting the plow to run smoothly, to maintain even depth and keep on doing first-class work regardless of action of the tractor in passing over uneven ground. It weighs no more than the average horse-drawn sulky. Beams are guaranteed not to bend or break. Frame connections are hot-riveted extra strong.

A full line of Plows, Harrows, Cultivators, Drills, Hay Tools, Spreaders, Potato Machinery, Beet Tools, Engines, Tractors, etc.

Spray—and spray with Spramotor



AWARDED OVER 100 GOLD MEDALS

The Spramotor drives the insecticide into the recesses that no other method of spraying can reach. It is 100% effective. Equally as efficient for painting, white-washing and disinfecting.

We want the liveliest implement dealer in every district for our agents—the profits we allow will attract the best men. Write for agency proposition.

SPRAMOTOR CO

15 King Street, London, Ont.

If You Want to Sell the Best of Everything

—then the engine you sell must be the

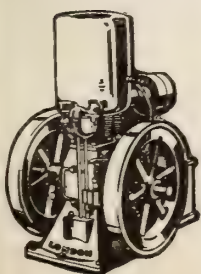
LONDON ENGINE

This is the vertical engine—the same style as used in automobiles.

It's built by experts who know the requirements of a farm engine.

Write us for particulars of agency proposition. We will tell you why you can sell more London Engines.

London Gas Power Co., Ltd.
29 York Street : London, Ont.



Sell the line already half sold!

Known Lines Getting the Business

If you handle any comparatively unknown lines you know what an uphill job it is to sell nowadays.

It is the well-known Lister lines that will get you the business in these times.

The name "Lister," and what it signifies, does more than half your selling for you.

The Lister name is known all over the world—and in your community—as representing the best in farm and dairy machinery. "Good old British Reliability" appeals to Canadian farmers who buy so cautiously now.

Lister Engines
Lister Milking Machines
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Melotte Cream Separators
Farm Lighting Plants

Write us for 1922 prices and terms

R. A. Lister & Company
(Canada) Limited

Toronto and Winnipeg

CANADIAN Motor, Tractor and Implement Trade Journal BUYERS DIRECTORY

This directory will help you with your buying and your planning. The advertisers listed here are thoroughly reliable and leaders in their respective fields. They are looking for live, wide-awake representatives. Study their advertisements carefully because they contain valuable information which will dovetail with your plans. We are glad to go to the trouble of arranging this list—to make it easy for you to select new lines. If it so happens that what you want is not here, write us, and we will tell you where to get it.

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Racine, Wis.

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Flexible Steel Lacing Co., Chicago, Ill.,
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BATTERIES

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Ont.

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Peter Hamilton Co., Ltd., Peterboro,
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Cockshutt Plow Co., Ltd., Brantford,
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CUTTERS**DAIRY SUPPLIES**

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Advance—Rumley Thresher Co., Inc.,
Toronto, Winnipeg, Calgary.
Cleveland Tractor Co., Cleveland,
Ohio.
Gary Motor Truck Co., Toronto.
International Harvester Co., of Can.,
Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto
Whitney Tractor Co., Cleveland, Ohio.
J. I. Case Threshing Machine Co., Inc.,
Racine, Wis.

TRACTOR PLOWS

Cockshutt Plow Co., Ltd., Brantford,
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International Harvester Co., of Can.,
Ltd., Hamilton, Ont.
Cleveland Tractor Co., Cleveland,
Ohio.
John Deere Mfg. Co., Ltd., Welland,
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Whitney Tractor Co., Cleveland, Ohio.

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Windsor Machine and Tool Works,
Windsor.

THRESHERS

Advance—Rumley Thresher Co., Inc.,
Toronto, Winnipeg, Calgary.
International Harvester Co., of Can.,
Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc.,
Racine, Wis.
R. A. Lister Co. (Canada), Ltd., Toronto

THREAD CUTTING TAPS**TIRES****TWIST DRILLS****TRUCKS**

Dominion Truck & Equipment Co.,
Ltd., Kitchener, Ont.
Gary Motor Truck Co., Toronto.
International Harvester Co., of Can.,
Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc.,
Racine, Wis.

TRUNKS

Lamontagne, Ltd., Montreal.

WAGONS

Cockshutt Plow Co., Ltd., Brantford,
Ont.
International Harvester Co., of Can.,
Ltd., Hamilton, Ont.

WATER BOWLS**WIRES AND CABLES**

OAKLAND TO BE MADE IN CANADA

OSHAWA, FEB. 5.—Another unit of the General Motors of Canada, Ltd., is being organized in Canada. The new company will be known as the Oakland Motor Car Co. of Canada, Ltd., subsidiary of General Motors of Canada, Ltd.

Operations will begin early in March. This will mean still more production for the Oshawa plants of General Motors, Ltd., which are at present turning out more cars per day than at any previous time in their history.

In the course of an interview Mr. McLaughlin remarked that the company's reason for launching out in this venture under the present conditions was influenced by the fact that it already had on its files large orders for the new Oakland Six for export shipment.

The officers of the company are: R. S. McLaughlin, president; G. W. McLaughlin, vice-president; M. L. Prenskey, treasurer; T. S. Merrill, secretary; G. W. Hezzelwood, assistant secretary. R. D. Kerby has been temporarily appointed as sales-manager, to perfect a sales service organization. This work is in addition to Mr. Kerby's duties as sales-manager of the Oldsmobile Company.

FORDSON TRACTORS REDUCED

DETROIT, MICH., JAN. 27.—Announcement was made to-day at the Ford Motor Works that the price of the Fordson tractor has been reduced to \$395 f.o.b. Detroit. This is a cut of \$230. Announcement of the reduction was made by Ford in a wireless statement broadcasted from the Northville station here.

"I have been farming all my life," Ford said, "and now I am doing everything possible to cut the cost of farming. I think it will help the country to make farm machinery cheaper as spring is coming on."

Production costs of farm products are still too close to selling prices to allow a fair margin of profit, Ford stated.

Ford told the farmers they would have to put their business on a paying basis by lowering the cost of planting, cultivating and harvesting crops.

"This alone will increase profits," he stated.

Ford said, in cutting the price of tractors nearly 50 per cent., the company had taken upon itself a gigantic task of reducing manufacturing costs but which is not greater than the farmers' problem of to-day.

WALLIS TRACTORS REDUCED

A DRASTIC price cut on tractors has been announced by the J. I. Case Plow Works Company, Racine, Wis. This company has reduced the price of the Wallis tractor, together with a J. I. Case three-bottom tractor plow, to \$995.00. The same combination a year ago sold for \$2,023.75. This price reduction, which is the lowest price that this equipment has ever sold at, was made after carefully considering all the angles contributing to business stagnation to-day.

H. M. Wallis, president of the J. I. Case Plow Works Company, when interviewed on the subject, said that this cut was his company's contribution to relieving the frozen channels of agricultural and related business and to help the farmer restore agricultural conditions to normalcy.

NEW MANAGER AT J. I. CASE PLOW WORKS CO. BRANCH AT MINNEAPOLIS

PAUL KNOLL has been appointed branch manager of the J. I. Case Plow Works Company at Minneapolis, succeeding Mr. M. Schibbsby, resigned. Mr. Knoll, due to his former connections, is well acquainted with the implement trade in the northwest territory. He has been a resident of Minneapolis for a number of years and is thoroughly familiar with the requirements of the territory. For the past two years he has been a director of purchases for this company at Racine.

His Blue, Translucent Eye-Balls Watch It---

Fifteen yards now and the tension is becoming great. Suddenly there is a click; a white wave of light breaks out from the bow of the boat—a dull report—then inky blackness—and the picture of the now-fleeing deer has been traced on the plate of the camera.

"Photographing animals by night, in the Canadian wilds, is a sport incomparably superior to that of the rifle-hunter," says the Hon. George Shiras, 3d, who for thirty years has been a devotee of this exciting pursuit. Almost a score of these midnight photographs—amazing, wonderful, artistic and almost unbelievable—will be shown in the

MacLean's Magazine for February 15th

Several pictures of deer, lynx and moose—and, most amazing of all, photographs of the busy beaver actually at work, cutting down a tree, towing a log to the beaver lodge—and even at work under water!

Although Mr. Shiras has taken several thousand pictures of Canadian wild animals at night during the past thirty years, this is the first time he has permitted the reproduction of any of his photographs in a Canadian periodical.

Read These for Information

GOD BLESS THE "GIRLS IN GREEN"—By Gertrude E. S. Pringle: A wonderful new vocation for women has been developed during the past few years—these girls effect amazing recoveries in the case of the mentally sick.

THE MENNONITES' TREK.—By Charles Christopher Jenkins: Ten thousand or more first-class farmers and their families are leaving Canada—the Old Colony Mennonites. This article tells why they prefer Mexico to Canada.

And These for Entertainment

JIMMY AND THE DOUGHNUT.—By Edgar Wallace: The heroine of this tale is a cocky and efficient little stenographer, who finds that bird-seed is the solution of the mysterious fraud which is puzzling an entire police department.

THE PATCH ON THE QUILT.—By "Sapper" H. C. McNeile: A theatrical story which will tug at the heart-strings of every reader; a really extraordinary human-interest story without a superfluous sentence.

MOSTLY SALLY.—By Pelham Grenville Wodehouse: This fanciful, rollicking serial nears its intriguing conclusion.

THE EVIDENCE IN THE CHAIR.—By Vincent L. Hughes: An absorbing mystery story which starts when a wealthy young man discovers a lady's handsome handbag behind the cushion of a chair purchased at a second-hand shop.

THE SAIL DRAGGER.—By Frederick William Wallace: A really generous installment concluding Mr. Wallace's melodramatic novelette of the sea—in which the hero wins a fortune by the narrow margin of three minutes, after a flight by aeroplane from Vancouver to Victoria.

Besides all of this, the Review of Reviews Department gives a review of world-wide matters of current interest that alone is worth more than the price of the magazine.

FEBRUARY 15th ISSUE ON SALE TODAY AT ALL NEWS STANDS 20c.

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"CANADA'S NATIONAL MAGAZINE"

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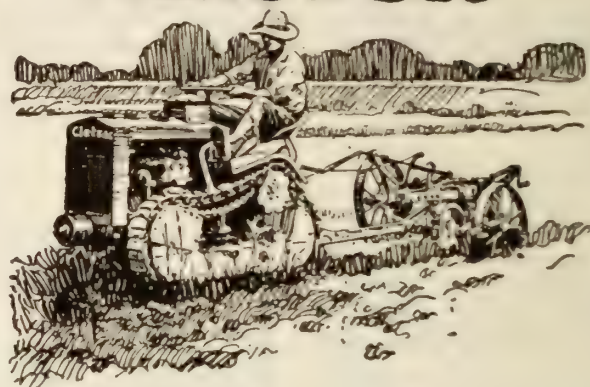
The New MODEL "F"

Cletrac

\$895

TRADE MARK REGISTERED

TANK-TYPE TRACTOR



WINDSOR

(Sales and import tax extra)

Cletrac 'W'

Now reduced to

\$1,445

WINDSOR

(Sales and import tax extra)

Cletrac "F"

---the easiest selling Tractor
ever built

Cletrac "F" is the tractor which farmers everywhere need—a crawler-type tractor which handles all farm jobs and which sells at a remarkably low price. Our new model "F" offers one of the biggest tractor sales opportunities in Canadian history.

Cletrac "F" weighs only 1,820 pounds. It is 83 inches long, 32 inches wide and 50 inches high; but it will plow 6 to 8 acres a day, cultivate 10 to 20 acres, harrow, haul and do all ordinary belt work. Is it surprising that we have received so many enthusiastic letters from dealers who have demonstrated its merits? It is built to give trouble-free service. Parts subject to wear are made of chrome steel. Lubrication is automatic. It has no grease cups—all working parts are lubricated from crank-case. Its dependable four-cylinder motor burns coal oil, (kerosene), perfectly.

Cletrac "F" is an epoch-maker. It represents a tremendous advance in tractor building. No other tractor can approach it in real value or in convincing exclusive selling features.

Substantial reductions in Cletrac prices are shown by our new price on Cletrac "W," which was \$1,710, and now sells at \$1,445. A similar proportionate reduction is represented in our price of \$895 for the Cletrac "F". Both prices are remarkably low.

Farmers are now buying again. Make 1922 a big tractor year by getting into the Cletrac line-up early. If you are not already a Cletrac dealer, write for our proposition and for descriptive literature.

THE CLEVELAND TRACTOR COMPANY

OF CANADA, LIMITED

Home Office:
WINDSOR, ONTARIO

Western Sales Office:
WINNIPEG, MANITOBA

You wouldn't go to China for Maple Syrup

because, the world's supply is right here in Canada. The same reasoning applies to Brake Lining. Brake Lining is chiefly composed of Asbestos. The centre of the world's supply of Asbestos lies right in the Province of Quebec, where ASBESTONOS is manufactured. All foreign manufacturers of brake lining pride themselves on the fact that they use asbestos mined in Canada.

"Why Not Deal Direct With The Source of Supply and Eliminate Unnecessary Exporting and Reimporting?"

ASBESTONOS Brake Lining

is made only from carefully selected long fibre Asbestos, through which is worked a double fibre brass wire in order to give it added strength. Then it is thoroughly impregnated with a special compound to enable it to withstand the action of hot oils and greases. The Asbestonos Company have spared no effort to produce a Brake Lining that would surpass all other makes.



Asbestonos will be marketed only through legitimate trade channels in a manner that will ensure prompt deliveries to dealers.



Brake Lining Racks are supplied free of charge by leading jobbers to dealers and garages who handle Asbestonos Brake Lining.

Ask Your Jobber for Asbestonos

ASBESTONOS COMPANY
East Broughton, Quebec

Richardson & Bureau
Montreal

Sole Selling Representatives



Now he knows Wilkie Piston Rings are the Best



A certain firm of general machinists doing a considerable amount of cylinder work has at its head a graduate engineer. This engineer chap is strong on finding out facts for himself, he believes in putting everybody's claims to test. When he heard all the good things claimed for Wilkie Piston Rings he was skeptical. So he devised a test. He selected several well-known makes of rings whose prices ranged from 30 cents to \$1.50 a piece. Then he used these rings in turn with "Wilkie" Rings on his own car. He discovered that when Wilkie Rings were being used his

motor developed considerably more power, that it could climb hills with less fuss, that consumption of gas and oil was less, and that when removed "Wilkie" Rings showed a perfect seat.

Prices of Wilkie Piston Rings

Size	Price
Up to 3 3/4 x 1/4 1	\$.25
Up to 3 3/4 x 1/4 1 ....	.30
Up to 4 in. x 1/4 1 ....	.35
Up to 4 1/2 x 1/4 1 ....	.40
Up to 5 in. x 5-16 .. 1 ....	.45
Up to 5 1/2 x 3/8 1 ....	.50
Up to 6 in. x 1/2 1 ....	.55
Above prices are for standard sizes in width and diameter. Larger sizes quoted on.	

This gentleman made the test of his own accord, we knew nothing of it until it was completed, the "Wilkie" Rings used were ordinary stock rings such as you can buy. It's no wonder this man is a confirmed believer in "Wilkie's." He made the test everyone of your customers makes on the piston rings you install. Guard against your customer's disappointment and your loss by installing "Wilkie" Rings—the rings that give more power from less gas.

An hour and a half
vs
A week and a half

What service can you give on the reboring of cylinders? Do you have to ship the block to the factory, wait for several days and make excuses to your waiting customer for long delays?

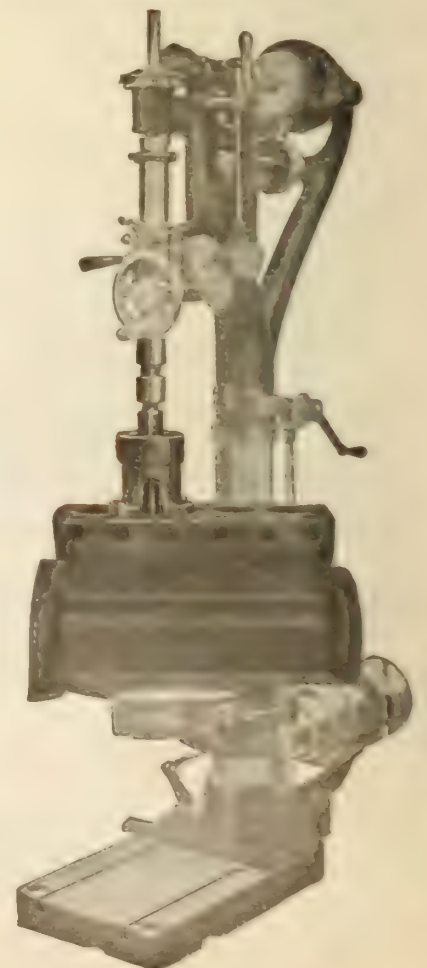
If you have a Universal Cylinder Reboring Tool in your shop you can turn out reboring jobs the same day received. The average four-cylinder block can be rebored by a "Universal" in about one hour and a half.

The "Universal" can be operated either by hand or in conjunction with power-driven drill press. It is the same tool that is recommended by a great many manufacturers for their service stations.

Let us send you fuller particulars.

Windsor Machine & Tool Works, Ltd.

312-316 Pitt Street, West - Windsor, Ontario



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TORONTO, MARCH, 1922

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Have you linked up with the big fellows?

EXTRA!!!

Gary Express One Ton

Timken Worm drive, Pneumatic tires, Electric lights, 8½ foot loading space, 5" Frame.

\$1495.00 F. O. B.
Factory



Right now we are busy allotting rich territories to agents of **Gary Worm-Drive Motor Trucks**. These outstanding machines form a combination that has few equals in selling strength. Dealers are quickly recognizing this fact and are linking up with our strong sales and manufacturing organization to put over this "**Big Fellow**" as no other truck proposition was ever put over in Canada.

You can sell many trucks in your locality when backed by the distinctive selling features of "Gary." You have a proposition which has been built for a purpose and which successfully eliminates trouble and introduces economy features.

The high reputation for quality and service of the Gary Truck is your guarantee, and your customers', of the general all round excellence of every model. From its famous Buda Motor to the Timken worm

drive full floating rear axle, every specification of Gary Truck reveals known quality of highest standard. You can't put your customers wrong on a truck of such type.

There are other features in Gary Trucks that will prove great aids to selling when you start out to push them. A card to us will bring full details and something interesting in regard to our agency and selling plans.

Other capacities from 1½ to 5 ton. Any type of body can be furnished.



GARY MOTOR TRUCK CORPORATION OF CANADA, LIMITED
27 ATLANTIC AVENUE, TORONTO



BILLMONT

All the wrench equipment you'll ever need with but a few wrenches, for each wrench takes the entire set of Billmont sockets. Makes 24 different wrenches by merely changing the sockets.

8 wrenches and 24 sockets will operate to the same extent as 192 wrenches.

This Billmont wrench set lessens the number of wrenches but increases their uses.

There's the *Master* with its hooked

nose and seven other wrenches with 24 interchangeable sockets (hexagonal and square). All handy and compact in a 22-gauge metal kit box ready for use.

Every dealer should carry sample kit in stock. Ask your jobber, or write us for complete catalogue.

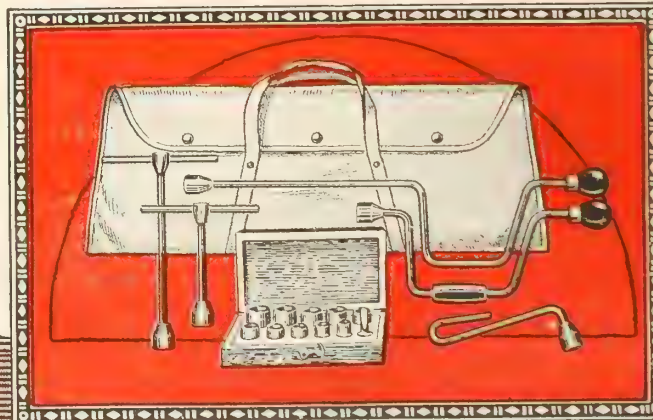
**The Russell Gear & Machine
Company, Limited**

TORONTO - - CANADA

WRENCHES with Interchangeable Sockets



Nose piece takes all sizes in Billmont sockets.



Sockets are finely machined, broached and hardened.

Factors of Case Leadership

The Case policy of sales promotion for 1922 is based on the experience of over 50 successful dealers who made money in 1921 selling Case machinery.

They were successful in a difficult year, so we took the best of their tried ideas and methods and combined them in a **plan** for the use of all Case dealers—a plan that will help any dealer who will use it, to get his full share of business in 1922.

Besides these sales helps, Case dealers have many other advantages. Strong influences that are particularly effective at this time will be working for them:

1. **Reputation.** The Company was founded 19 years before Abraham Lincoln became President, and has grown in the esteem of farmers everywhere because of its honest products and honest dealings.
2. **Quality Product.** Case tractors, threshers and power farming machinery are noted for their superior qualities of design and construction.
3. **Extensive Line.** A line of power farming machinery sufficiently extensive to meet the requirements of every farmer and of every condition in your community.
4. **Large Manufacturing Facilities.** Unexcelled facilities for producing in quantity high grade machinery to sell at volume prices.
5. **Large Sales Organization.** A large, well organized and efficient sales force that will miss no opportunity to assist our dealers at any time.
6. **Effective Advertising.** Forceful sales messages in leading farm journals and other effective advertising to the best farmers in every part of the country.
7. **Well organized service facilities** that enable our dealers to keep Case owners satisfied.

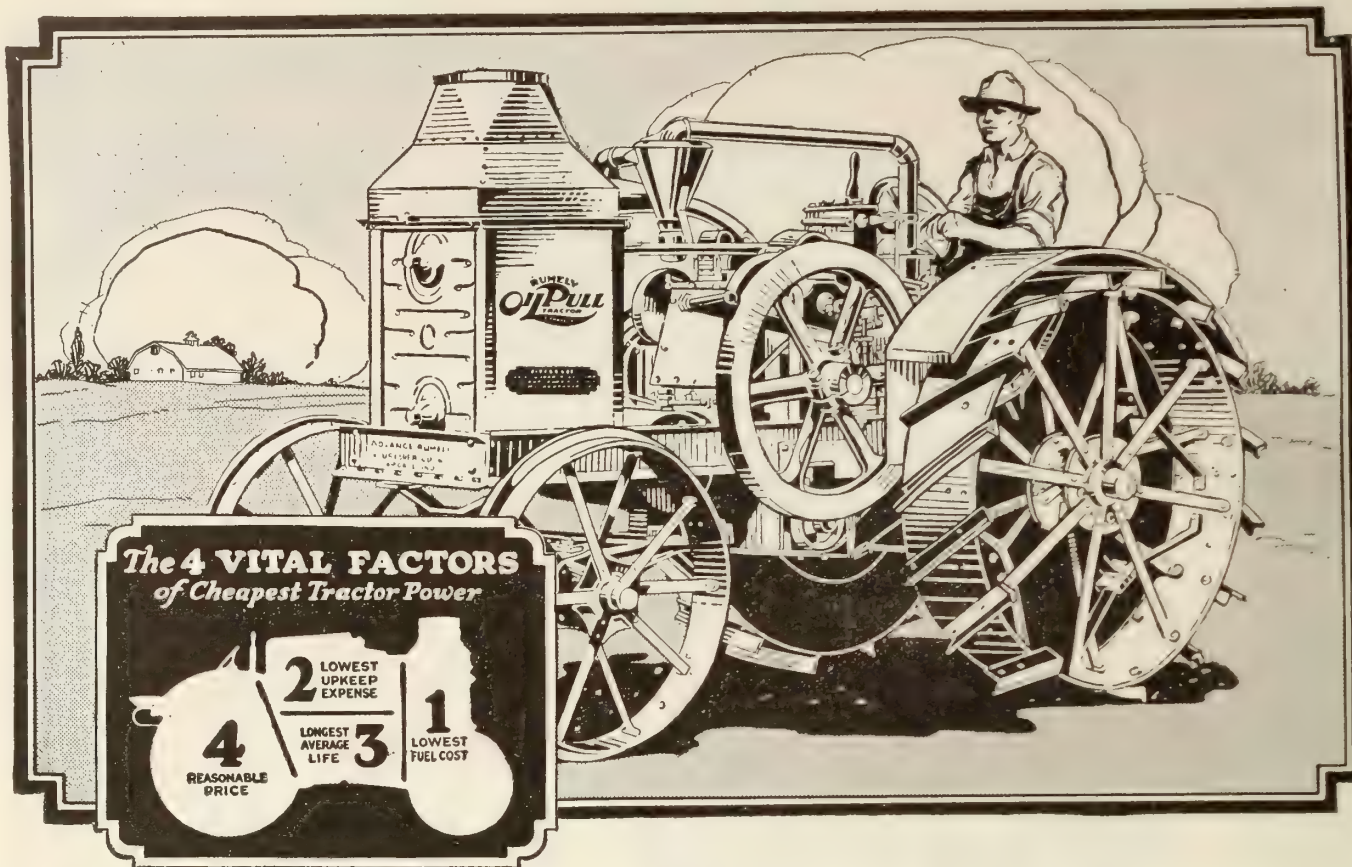
If you are determined to gain leadership in the power farming machinery business in your territory, come in to our organization and take advantage of these opportunities now.

J. I. CASE THRESHING MACHINE COMPANY
Dept. R216 Racine Wisconsin

Factory Branches *Alta., Calgary—Edmonton Sask., Regina—Saskatoon Man., Winnipeg—Brandon Ont., Toronto*



NOTE: We want the public to know that our plows and harrows are NOT the Case plows and harrows made by the J. I. Case Plow Works Co.



Cheapest Power Is Easiest to Sell

Four Vital Factors are necessary in a tractor to make cheap power. These are:

1. Lowest fuel cost.
2. Lowest repair expense.
3. Longest life.
4. Reasonable price.

To combine them has long baffled Tractor Engineers. But they are now positively combined in the OilPull. This is proved by the following records: (1) An OilPull has held all official National Fuel Economy records for 10 years. (2) Exhaustive investigations indicate that OilPull yearly upkeep is only 50% of the national yearly average found by Government Experts. (3) The average life among OilPulls is 10 years and more. (4) OilPull prices are always reasonable.

These records are due to high-grade construction, oversize parts and especially to Triple Heat Control—a perfected oil-burning system which finally solves the problem of getting the power out of cheap kerosene.

The final result is that the OilPull—with lowest fuel cost, lowest upkeep expense, longest life and a reasonable price, provides the cheapest power.

Triple Heat Control is being widely advertised. Farmers in your section as well as others will want to know about it. Write for our booklet which describes the system.

We have some valuable territory still open. Write for details.

Advance-Rumely Thresher Co., Inc.

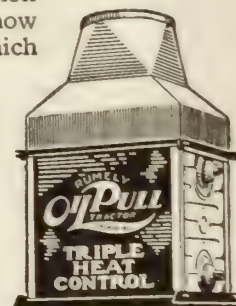
Calgary, Alta.
Saskatoon, Sask.

Regina, Sask.
Winnipeg, Man.

48 Abell Street, Toronto, Ont.

The Advance-Rumely line includes kerosene tractors, steam engines, grain and rice threshers, alfalfa and clover hullers, and farm trucks

Served from 29 Branch Offices and Warehouses



ADVANCE-RUMELY

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

Volume 4

TORONTO, MARCH, 1922

Number 3

How a Western Dealer Increased His Business Despite Partial Crop Failure

By Taking Responsibility for All Adjustments and Repairs, Providing Prompt Guaranteed Service and Hard Work Moe Bros. of Kisbey, Sask., Sold a Large Number of Tractors and Threshing Machines Last Year, "Bad Business" Notwithstanding

WHEN A DEALER is willing to work hard, when his equipment is sufficient to take care of all service requirements, and when his service to customers is of the right sort, no matter what the general business situation may be, he will always attract a large percentage of the business in his community. So argue Moe Bros., automobile and tractor dealers of Kisbey, Sask. With this policy they sold during 1921 more than \$20,000 worth of tractors and threshing machinery, together with a large volume of automobile repairs, new car sales and automotive equipment sales.

When one considers the difficult business situation which prevailed during 1921, and that Kisbey is a small town with a population of less than three hundred it will be seen that the amount of business done by Moe Bros. was remarkable.

In a letter to Canadian Motor and Tractor, Moe Bros. said they accomplished this amount of business by hard work and service.

They have a system of guarantee, which is backed up by them to the letter. They take care to let their prospects know, through their letters and advertising, that every car, tractor or machine sold by them, and every repair job, is protected by Moe Bros. personal guarantee.

Handle Own Service Problems

"We undertake to keep all our cars and machines in working shape, irrespective of service help from the manufacturer," said P. F. Moe. "By being in a position to supply this service not only do we save time for our customers, but a great deal of money besides. We handle all tire adjustments direct. We don't ask a customer to wait until the matter is taken up with the manufacturer. Our system has always been to serve the customer promptly; and by taking the responsibility of adjustments, and repairs on defective parts, all delays are wiped out, and we have every reason to believe our customers appreciate our policy.

"This does not mean, of course, that we give our service for nothing. All tire adjustments and repairs on defective material are covered by the manufacturers warranty. All that we do is to speed up the work and keep customers satisfied.

"Our garage is well equipped to handle all repairs, whether on cars, trucks, tractors, or farm machinery. Our equipment includes an oxy-acetylene outfit, which is kept busy the year round. Besides our regular automotive work, we do quite a good business in steam engine repairing.

"We don't carry a very large stock of auto accessories and parts but the stock we do carry is well assorted. Our motoring public is small, consequently the market for accessories is limited. However we keep everything on hand which a motorist requires.

"Owing to the unsettled condition of the automobile market last year our car sales were not so

good as our tractor and threshing machine sales, but we believe 1922 will see a considerable improvement. Anyway we are expecting and preparing for a larger automobile business.

Worked Hard For Sales

"We had to work hard and long for everything we sold last year. We simply had to convince our prospects that the goods we were selling were the best on the market and that the prospects could not



This picture shows some of the tractors and individual threshing machines sold by Moe Bros. during the summer of 1921

afford to do without them. I think that is about all we can say about what we were able to sell last year, except of course, that we advertised regularly in the local papers and sent out letters.

"By our system of guaranteed service we have turned many of our customers into real salesmen. Some of the machines sold last year were sold through the efforts of satisfied customers.

"We started business in 1917 with \$300 worth of light tools and the modest sum of \$50 in cash. In the fall of 1918 we were able to purchase land and erect a garage of sheet steel with concrete floor. We now have a garage and property worth \$11,000 all paid for. Considering that since we started in business there have been four partial crop failures, we are satisfied our progress has been good."

Moe Bros. keep a prospect file which tells the story of every prospective buyer in their territory. The card they use is similar to those which have been reproduced in recent numbers of Canadian Motor and Tractor. It gives full information concerning the prospects rating, occupation, what he is in the market for and general remarks regarding progress in selling. This file is constantly referred to and kept up-to-date.

WINNIPEG AUTOMOTIVE EQUIPMENT SHOW BIG SUCCESS

THE SECOND annual exhibit of automotive equipment was held in the Board of Trade Building, Winnipeg, Man., February 6-11, under the auspices of the Western Canada Automotive Equipment Association, of which E. W. Hamilton is the president. The show was formally opened by Alderman Douglas who represented the Mayor of Winnipeg. Continuous music was furnished afternoon and evening.

The individual exhibits numbered about 100. Many U. S. manufacturers of automotive equipment were represented. It is estimated that about 1,600 dealers visited the show and many orders were left by them. One exhibitor reported 67 sales to dealers during the week.



Moe Bros. started business in 1917 with \$300 worth of tools and \$50 cash. They now have a garage and property worth \$11,000, all paid for.

Where Is the Motor Truck Market? Who Will Buy Now?

There Is a Large Potential Market for Motor Trucks Which Can Be Developed Into Actual Business Right Now. Dealer Should Waste No Time on a Dead Market.
There Is Enough Real Business to Keep Him Busy

WHERE is the truck market and who will buy trucks, are questions being asked by all manufacturers and dealers interested in truck transportation. There is no question of the existence of the truck buyer, but he must be found and sold. He will only buy when convinced it is to his interests to do so. He will not hunt up the truck salesman but will wait until he is approached. He is tired of paying high railway freight rates and suffering delays and is looking for a better and cheaper transportation. What he is looking for is the truck and it is the manufacturer's and dealer's job to convince him that it is so.

How easy it is to sit back in a comfortable chair with pad and pencil while the icy blasts whistle down the chimney and the sleet tinkles against the window, and inscribe good advice to the men who are out battling the elements.

Arm chair strategists are seldom popular with the boys who are "lotting" the "Gladstone" bags, and when occasionally one of them gets up on the rostrum to address a sales meeting, he gets courteous attention while he is talking, but after the meeting breaks up he gets what is popularly known as "the raspberry."

Therefore, when the writer of this article attempts to make answer to the question, "where is the truck market?" he tenders his comments with a full realization that the intelligent audience to whom these remarks are directed is likely to be highly critical of any ideas here expressed. If every shot does not ring the bell with a loud resonant clang, the shower of aged and senile vegetables will commence. To avoid any such deplorable contingency, we shall stick pretty closely to what we (editorially speaking) have actually done and what we (also editorially) have observed other fellows do. We shall stick to facts and logic, leaving those beautiful flights into theory to some more propitious season when sales are coming easier and our listeners more tolerant.

To get back to that insistent question, "Where is the truck market?" it seems pretty well established that there is no truck market right now—except that which we create. The old times are gone—the times when it was not "Will you buy?" but "How long can you wait?"—and it's a good thing for all of us. That was an inflated and unnatural condition that could lead only to disaster. Merchandising of motor trucks, automobiles, or shaving soap is based on the principles of salesmanship. The seller must go to the buyer, prove his goods worthy, and by means of a convincing sales talk make the buyer want the goods badly enough to sign an order. That is the only foundation upon which sound business conditions can rest. We have got to forget some of our past tactics and get our feet right down on the ground and think.

We are entering a new era in the sale of motor trucks and the first fact that must be faced, recorded, and accepted, is that this is distinctly a buyer's market, and will be for some time to come. Therefore, in order to go out and buy the customers' dollars with our trucks, we must apply to the problem all the brains and intellect we possess.

By R. S. WILLIAMS

We must not waste any time or any money on prospects who are not promising, so before starting out let us go over the list and eliminate the lines of business that don't look good. Right now it would seem that the farm market is dead, and while the price of farm products shows signs of strengthening, it will not pay to spend too much time canvassing the country. However, the farmer should be watched carefully, and a good mailing list made up of possible prospects; this list to be circularized

supplies—cement, brick, etc.—this is one business that is on the up-grade. Spring will soon be here and already the building and contracting industry shows signs of returning life. Lower material and labor costs will stimulate building and with the increased business the lumber and building contractor present excellent prospects for trucks. Work them hard and work them intelligently. Rig up a truck with panel stake body, which is the favorite with lumber men, and if necessary do a little hauling by way of demonstration. Then sit down with a prospect and with paper and pencil show him what can be saved in time and maintenance cost over horse-drawn outfits.

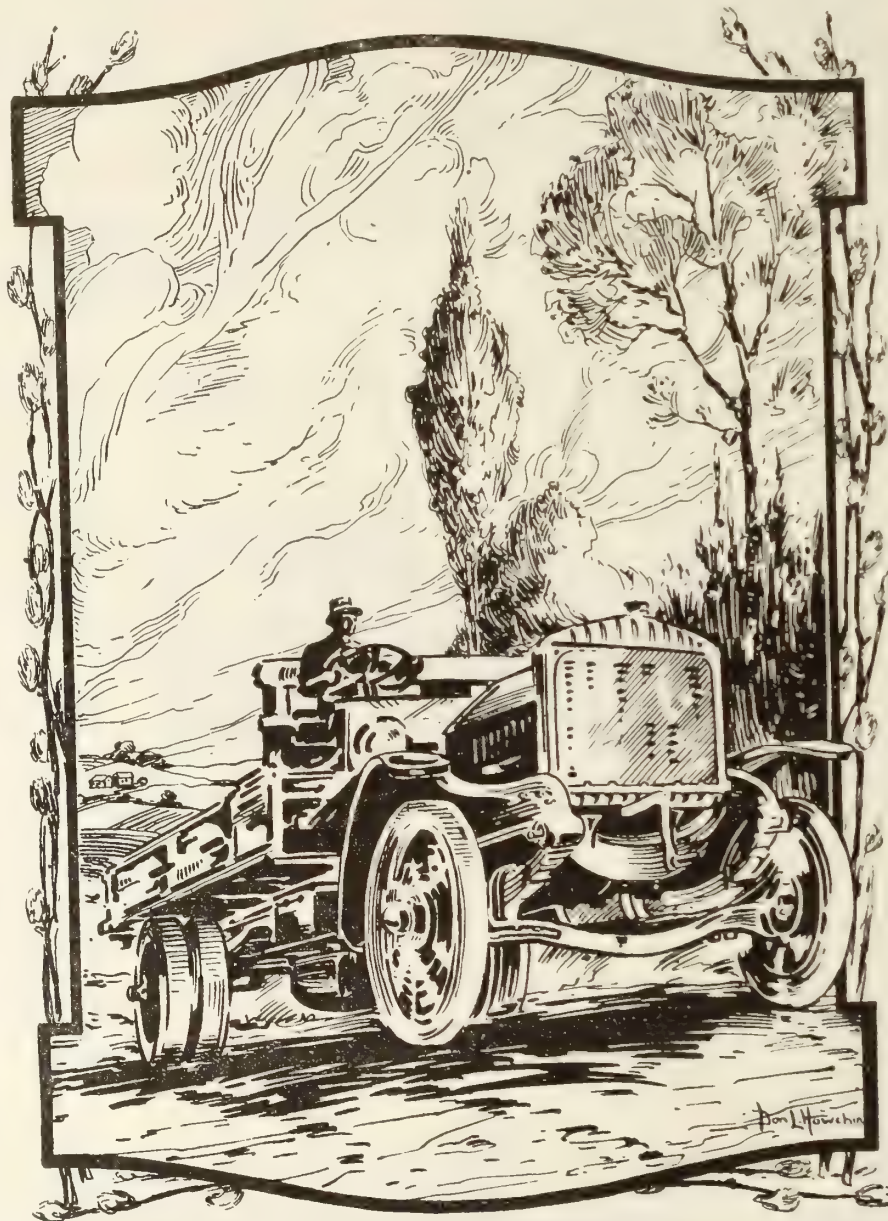
If he has made the common mistake of buying light delivery trucks, which are only transformed passenger cars, you will have to go after him on another tack. You can prove beyond question that such light trucks cost him so much in upkeep and depreciation that he cannot afford to run them. The error in judgment in expecting a boy to do a man's work is one that frequently is made by firms who are buying mechanical transportation for the first time, and is something you should work against.

Call On The City Fathers

Another source of revenue to the truck dealer at this particular time is the municipalities. Every town, large or small, is anxious to equal its rival in municipal equipment, and frequently a live dealer can turn this natural desire into profit. At this season of the year, the Reeves and other officials are looking over their road-grading equipment—tractors and motor trucks—with an eye to the spring work. Sometimes this work is done by private individuals on contract. There are many men in Eastern Canada, especially, who are equipped with tractors, graders, and dump body motor trucks for road building and road maintenance. The good roads programme is a live issue now in all parts of the country. The question is being actively supported by people who advocate road building as a means for alleviating unemployment. This is your cue to look over your territory and lay your plans right now for selling trucks for road work. Get the names of the proper officials, make their acquaintance, send them letters and catalogs, and give them actual demonstrations.

It has been said that selling trucks to municipalities requires "wire-pulling" and playing politics, and without doubt there have been such tactics pursued occasionally, but in the great majority of cases, real merit, plus a fair price, secures the order from a city the same as it does from a commercial enterpriser.

The average small town as well as the larger city, is straining to acquire modern fire protection. With the declining price of trucks more towns will purchase motor propelled fire trucks because of the real need for such service. You can get this business. It is profitable as well as spectacular. Police patrols, ambulances, and other city cars, in proportion to the size of the town, all present possibilities for profitable sales. If you have telephone companies, gas and electric companies, and other public service corporations, don't let them sleep but keep hot on their



The transportation hope of the present and the future

every two weeks with sales letters and advertising literature supplied by the manufacturer. A few months from now, when the farmer has again come into his own, you and your truck will be foremost in his mind when he decides to buy.

While the farmer and some other lines of business that depend for prosperity upon rural trade are partially comatose and to be worked only by mail, there are some other lines that are rapidly picking up. These should be winnowed out and concentrated upon.

Take the lumber men and all dealers in building

trails. They are not so badly hit by the present depression and will react more favorably to sales effort.

Possibilities of the Passenger Bus

Another line of business that deserves work and attention is passenger transportation. Springing like a "phoenix" from the ashes of the old stage coach, a new industry is arising—that is passenger hauling. City bus lines, inter-urban busses, and consolidated school transportation are three distinct subdivisions of the same general class of business and each one of them presents wonderful opportunities for development. The inter-urban bus lines especially are coming to the front because they possess immense possibilities for gain. The consolidated school idea is growing and is the logical outcome of the universal

dissatisfaction with the present system.

Bus bodies of all kinds are made in Canada and any truck manufacturer—domestic or foreign—can supply a home-built bus body to meet any requirement.

The avenues just enumerated do not represent the sum total of the sales possibilities. They are mentioned simply to call attention to some sources of profit that too frequently are disregarded.

No Royal Road to Success

There is no easy way to business success. A short time ago a noted motor truck sales manager addressed his salesmen and among other things said: "I have subscribed to business courses, bought several sets of business volumes, and attended lectures and

speeches by the score in an attempt to learn the secret of quick and easy selling. I thought there surely must be some trick or short-cut that would enable me to beat the game. I find that every business course, every book, every article, and every speech reiterate the same words. They constantly hammer away on the same old topic. They differ in method and application, but they all seem to agree on one point, namely: that the only successful way to satisfactory results in the sale of anything is **HARD WORK** and lots of it. It is an awful blow but I believe after all they are right."

Hard work, plus lots of good business sense, will always find a way over, under, around, or through the most difficult proposition.

Do You Know How to Figure Truck Costs?

Success of the Truck Dealer Depends on the Profitable Operation of the Trucks He Sells.
Importance of Cutting Down Terminal and Intermediate Delays

TO SELL trucks intelligently the dealer should have a thorough knowledge of his particular truck and its operation and also a fair working knowledge of how to estimate costs. Few truck owners can succeed in hauling goods for profit if the real cost of operating the trucks is unknown, the entire cost of doing business, plus the desired profit, must determine the price or rate at which the service will continue to be rendered. The same applies in the case of the man or firm operating trucks for their own commercial purposes.

Various motor owners adopt different bases for estimating the work done by their vehicles. Some are content with recording the mileage covered. Others record only the tonnage delivered. Others, again, go to the trouble of recording both mileage and tonnage, and estimating the work as correctly as possible in ton-miles. This is really the proper course whenever it is practicable, which is not always. The difficulties that sometimes stand in the way of estimating mileage is a stumbling block in the way of heavy operators. There is no difficulty in estimating the tonnage sent out, but even when we know both this and the mileage we do not necessarily know the number of ton-miles performed. If the whole of the goods sent out are carried over a through route to some definite point where a new load of known weight is put on board and brought back to the starting-point, our problem is a simple one, though, even in this case, there are possibilities of making stupid errors in calculations. If our out-going load consists of a number of parcels to be delivered at a number of points, then the exact estimation of ton-mileage is very difficult, and we can only get at an approximation by assuming, say, that on the average the load is carried over half the length of the round. Some items are, of course, taken further; others, not so far, but if we start out on a twenty-mile run with a ton of miscellaneous goods to be delivered in detail, we shall probably be not far wrong if we reckon that the journey represents ten ton-miles of useful work done.

As has already been mentioned, some motor transport users measure work in tons, which is, strictly speaking, ridiculous, though in certain businesses the tonnage carried is, in fact, fairly proportional to the useful work performed, and the figures of tonnage are, therefore, valuable for comparative purposes as between various vehicles of the fleet. On the other hand, one vehicle may be habitually used for carrying goods to a point twenty miles distant, while another for the most part carries to a place only five miles distant. The second one ought theoretically to make four journeys to every journey made by the first one, and, if it does, assuming the vehicles to be of the same capacity, it should deal with four times the tonnage. Even this is not strictly correct, because the vehicle making the shorter journey probably has to spend a bigger proportion of its time in loading and unloading processes, in which case it cannot be blamed if it only carries two or three times as many tons as conveyed by the vehicle which has the longer run.

Cutting Out Delays

For this reason comparison of ton-mileages is not necessarily a fair base of comparison of the efficiency of vehicles or of their drivers. The figures are, nevertheless, instructive. Thus, if the ton-

mileage performed by some particular vehicle is very low, we are led at once to inquire the cause. This may be excessive waste of time in loading and unloading. In that case, the necessity for spending money in order to ensure shorter delays is brought home to us. The cause may be bad organization of routes, which is sometimes the direct result of replacing horses by motor vehicles and failure to reorganize the service so as to take advantage of the special capabilities of the latter.

Mention has been made of the fact that stupid mistakes are sometimes made in reckoning ton-mileage. People who have been in the habit of reckoning only tonnage incline to fall into the error of adding up the whole tonnage for the day, multiplying the figure so obtained by the mileage covered, and calling the result the ton-mileage performed. A simple example will easily show what serious mistakes can be made in this way.

Suppose that the day's work of a 2-ton vehicle consists of the following:

A run of twenty miles with 2 tons up.

A return journey of twenty miles empty.

A run of ten miles with 1 ton up.

A return journey of ten miles with a return load, also of 1 ton.

Now the total distance covered is sixty miles. The total tonnage moved is 4 tons. If we were to multiply the two together we should arrive at the result of 240 ton-miles.

But let us consider each journey singly. The first out journey involves 2 tons carried over twenty miles, giving 40 ton-miles of useful work. During the return journey no useful work is done. During the next out journey the useful work is 10 ton-miles, and on the second return journey a further 10 ton-miles are added. The actual work done during the day is therefore 60 ton-miles, and not 240 as some people persist in reckoning.

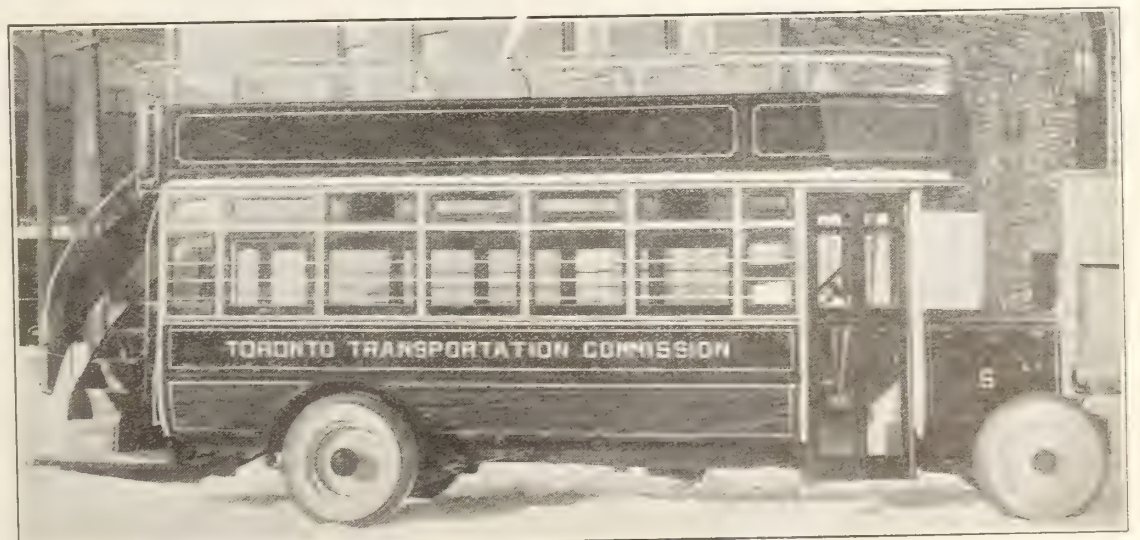
Capacity and Ton-Mile Cost

Generally speaking, vehicles of large carrying capacity can show lower figures of cost per ton-

mile than is possible with smaller vehicles. If the records do not indicate this the user may be fairly certain that either his services are badly organized or else some of his vehicles are too large for their work. If the latter is found to be the cause then there are two possible courses of action. One is to get rid of the vehicle and purchase others of smaller type; the second is to adopt special measures for reducing the time spent in loading and unloading. Thus, for instance, if it takes on the average an hour to load up or unload 1 ton of goods, then the full loading and unloading of a 4-ton vehicle will occupy the whole of an eight-hour working day. If we can reduce the time spent at the terminals by adopting methods which will allow 4 tons to be loaded or unloaded in an hour, then there remains six hours for actual running time, and what was previously a useless vehicle can be worked with considerable efficiency. This serves to show how important it is to cut down terminal delays, even if considerable cost is involved in so doing.

Naturally, it is equally important to cut down intermediate delays if these are serious. The problem is, however, even a more difficult one. We may install special plant to enable loading to be quickly done by our own depot, but we cannot always carry such plant about with the vehicle so as to accelerate unloading away from home or the taking up of return loads.

If a vehicle engaged in retail deliveries be found to cover only a very small mileage in the day on account of the time taken in effecting the deliveries, then it is evidently worth while to consider whether much of this wasted time could not be saved by sending out an additional man with the vehicle. This may lead, perhaps, to a saving of a minute at each delivery or, if sixty deliveries in all are to be made, of an hour altogether. This hour represents, say, the possibility of covering an additional twelve miles, so that the vehicle can do a considerably longer round, and the saving thus effected may more than pay for the wages of the additional man carried.



This bus was recently delivered to the Toronto Transportation Commission by the Eastern Canada Motor Truck Co., Hull, Que. It has a carrying capacity of 51. The engine used is a Buda. The transmission is of the constant mesh type. Other features are, demountable cashier wheels; thermostat cooling system; Westinghouse electric starting and lighting system. The bus is finished inside with mahogany and brass fittings. A front exit is provided, enabling the bus to be unloaded in 30 seconds.

LET 'EM KNOW YOU HAVE IT!

Automotive Equipment Well Displayed Is Half Sold. It Demands Attention. It Creates the Desire to Buy. A Good Display Will Add to Your Profits Substantially. Displays to Be Effective Should Be Prominent. Place Goods So That Customers Can Handle Them.

ONE of the fundamental principles upon which business is founded is the bringing to the public a knowledge of the merchandise or products which are for sale together with information as to where they can be secured.

In the merchandising of automotive equipment this principle is carried to excellent advantage by many different and inexpensive methods of displaying these products.

The dealer in automotive equipment has a tremendous advantage over dealers in many other lines due to the fact that that portion of the public which constitute a market for his merchandise are brought to his establishment in an unending stream through their need for supplies and service hence merchandise displayed by the dealer in automotive equipment strikes the eyes of the people to whom it is designed to appeal, reducing to a minimum the waste effort encountered in other lines of business and adding to the effectiveness of this type of advertising.

In addition to being very effective this type of advertising has the advantage of being comparatively inexpensive. Newspaper advertising is expensive and reaches a large percentage of people who have no use for or interest in the products advertised. This is true of any merchandise.

Well displayed merchandise demands attention. The car owner who calls for supplies and service can be attracted by a display of articles which appeal to him for the reason that they have been manufactured to help him to obtain greater and more comfortable service for his car, and, as a prominent man in this industry was heard to say a few days ago, "A man's car comes second only to his family."

Displays in addition to attracting the attention of a prospective customer frequently arouse his curiosity to a point where he will enquire from a salesman the uses of the product, thus giving the merchandiser an opportunity to capitalize the interest which he has shown by giving him a sales talk and asking him to buy.

Display Must Be Prominent

Displays to be effective must in the first place be prominent. They must be so placed that they can be seen to the best possible advantage by the greatest possible number of people. The average garage and service station lends itself readily to the display of automotive products due to the fact that there are so many prominent places where merchandise can be displayed in such a manner as to attract the attention of customers driving up into the garage.

A large percentage of garages have the office placed near the main doorway making a passage or runway through which car owners must drive in entering the garage. The sides of these runways make an excellent location for the placing of wall cabinets due to the fact that the majority of car owners proceed very slowly through these passageways and frequently stop at the office door.

Everything considered, there is no more effective place in the whole field of business for a display than in an automotive merchant's place. One reason why this is true is that when the car owner enters the merchant's place of business his thought is on his car. He is driving the car, he is sitting in it, he has just been in a position where he can appreciate the car's squeaks, rattles, knocks and other imperfections. Therefore, when he sees something that might be useful to him he is partly sold by the simple process of looking at the merchandise.

The dealer is in these days of high business expense and not any too great profits seeking every cheap means there is of adding to his business. If he can hire a high-class mechanic or salesman for a low wage and be enabled to retain this employee on these

By RAY W. SHERMAN

Merchandising Director Automotive Equipment Association

terms it is an arrangement full of benefit for the dealer. In this class comes Mr. Display. It isn't costly to hire him. It costs almost nothing to pay him. He will work forever, and never run off to a competitor to get a job. He is just as efficient at 6 o'clock



A cheap but effective display used by a dealer. Every man who goes to the service station cashier's window has to see this display and the man in charge of the floor is trained to look over cars and ask people to buy the things they need

at night as he was at 7 o'clock in the morning. He works 24 hours a day, tells his sales story equally well at all times and can be made one of the best little helpers that exist in the automotive field.

Mr. Display Works at a Low Salary

It costs little to hire him. One dealer in a fair-sized middle western city proved this point. He had no facilities for displaying automotive equipment to his numerous customers. He made an investigation to determine what could be done. He had in one corner of his service floor an office where nearly all his customers were obliged to call when in the service station. The equipment stock was kept at the back of this office. The dealer found that he could make a very effective display by cutting out part of this office wall and putting in display cabinets. These were simply a thickening of the wall, with the addition of a back, a glass front and a few shelves, with lights to illuminate the goods. This necessitated little other than a small amount of simple carpenter work. Even rough boards can be used in this work because they can be made attractive by covering them with crepe paper as the displays are changed.

At the back end of his car salesroom he had several breast-high counters at which customers called to transact business. These counters were also beside the passageway to the service station. He found it possible to put in place of a couple of these counters show cases which served the double purpose of show case and counter. When a customer went to one of these counters thereafter to transact business he found himself compelled to look at the equipment display.

On top of such a counter should be placed articles that the dealer thinks will most interest customers or which he is anxious to push. For example, a spot light on top of a counter is likely to be picked up and handled by the man who is waiting at the counter.

And when he shows that amount of interest it is a cue for some one to talk to him about the advantages of the spot light.

A real money-maker in displays is something which moves. If a dealer can rig up a piece of equipment in motion it is bound to attract much more attention than something that is still.

Place Goods so Customer Can Handle Them

If featuring a horn, fit it up on top of the counter so customers can blow it. Any man who touches the button of a horn and hears it roar is more likely to listen to Ask 'em to Buy conversation than before he blew it, because the blast of the horn disturbs the store and the customer realizes that he has practically called the attention of a salesman to the fact that the customer is interested in the horn. When he is in this listening mood there is a fair chance to sell him.

It is important that customers be permitted to handle the things you have to sell. There are some dealers who for fear somebody will handle it. Maybe they have good reasons for so doing, but just think a moment and recollect the number of times clerks have handed you neckties, underwear and other articles so you could handle the goods. With goods in his hand a customer is nearer sold than before.

Aside from putting feature articles out where people can handle them, it is effective in selling to hand the article to the customer when selling him. Let him get the "feel" of the thing by having it in his own hands.

To summarize, show cases, display cabinets in shops and service stations, and windows are cheap and effective aids to the filling of the cash register. Windows are the most neglected profit makers in this industry. There is hardly a shop or garage, small though it may be, that hasn't a set of windows in the front. These windows add to the cost of the building and this cost was added because the builder realized that business men need windows.

Set Your Window to Work

If you have a window that is not being used and that is not fitted up for display purposes it is easy and inexpensive to put it to work. First, get some boards; even rough ones will do. Lay a floor for the window and erect a background of whatever height you think best. Cover the boards with crepe paper or some sort of cheap material, arrange overhead lights, which illuminate but cannot be seen from the outside, and there you are. This makes a cheap window. Of course, it is much better to go to more expense and make a real window, but even a cheap window of this kind can bring good results.

Having built the window, TRIM IT. Put goods in it. Arrange them as attractively as you can. Ask some jobbing salesman for a copy of the Automotive Equipment Association's book, A Greater Business, in which there is a page on how to trim windows. Window trimming is a comparatively simple job.

In utilizing all these Mr. Displays there is one essential. That is this: Once a customer stops to look at something that is on display ASK HIM TO BUY IT. What good does it do for Mr. Display to call a customer's attention to something if the customer is to be permitted to walk away without the article. Mr. Display can do just so much—and no more. He can excite the interest of customers in your merchandise but he can't ASK 'EM TO BUY. Somebody has to step in here and give Mr. Display a helping hand, and if that is done he can do a lot to keep the cash register ringing.

Here is a suggestion. Supposing you have a dozen jacks, or a dozen cans of compound, or a dozen

(Continued on page 7.)

Sell Your Prospects on Lower Tractor Prices

With Recent Reductions in Tractor Prices the Dealer Has a Big Opportunity to Increase His Sales by Preaching Farm Power at Low Cost.

TRACTOR prices have been cut. Not just slight reductions, but real cuts which place the prices for the various mechanical power plants at figures far lower than have ever before prevailed and even lower than most farmers have expected or even asked.

This is indeed a different condition from that which has existed during the past two decades. Ever since tractors were first placed on the market, dealers have been accustomed to having their prospects argue as to the relative economy of mechanical and animal power for farm work. The high initial cost for the tractor has been one of the greatest bugaboos in the industry and one which had more or less influence with practically every prospect.

As a consequence most tractors in the past have been sold on farms about the average size, where big outfits which would enable a man to cover a large acreage per day at the various field operations were a most important factor. On such farms the relative economy of the tractor and horses was of less importance than the ability to do a large amount of work in short order. Furthermore, the high initial cost was of less importance on large acreages since the investment per acre was much less than on smaller farms.

At the same time the large farms offered the most favorable opportunities for tractors to reduce the cost of farm operations, inasmuch as there would be work for the outfits more days each year, and hence the overhead charges were less than in the case of farms with small acreages.

Years of experience with thousands of tractors have proved that mechanical power is cheaper for practically all field operations than is animal power; at least on the farms where tractors have been used. Many of the owners of smaller farms, however, have been reluctant to accept the figures given by tractor owners on larger farms as being applicable to their own case. They have usually pointed out the fact that the tractor was a rather expensive item of equipment and on their smaller farms it represented a higher investment cost per acre than for the larger farms, and in many cases the dealer has found it difficult to successfully meet their arguments along this line.

Tractors Now Within Reach Of All Farmers

Today finds these conditions greatly changed. The enormous reductions which have recently been made in the prices of farm tractors and the liberal terms which are offered in their purchase, place tractors within the reach of almost every farmer who has required two or more teams for his farm work. Not only can tractors be bought for the price of two good teams, but they can be bought on more liberal terms than those on which horses can usually be purchased.

This low first cost of the tractor reduces tremendously the overhead items of interest and depreciation which have heretofore represented a very large percentage of the tractor's operating cost.

There never has been any question regarding the greater economy of the tractor in developing power when these overhead charges are ignored. The cost of fuel, oil, and repairs on a tractor are usually much lower than the cost of feed, harness, shoeing, and other expenses connected with horses.

In years past, many tractor dealers have not emphasized or advertised the low cost of tractor power for the reasons above mentioned. They have usually found it better policy to emphasize the greater capacity of the tractor and its value in covering a large acreage and thus hurrying the work along. Today, however, the tractor dealer can well afford to bring the question of economy to the front, as it is not at all difficult to show how the tractor will not only do the field work, on even a comparatively small farm, much quicker than it is possible to do it with horses, but also do it at less actual expense.

By **ARNOLD P. YERKES**

A fact which many farmers do not realize is that the prices of tractors, in common with other farm machinery, did not increase during the war to the extent of most other commodities. There were several reasons for this, but they need not be touched on here, as they are familiar to practically all dealers. The recent large reductions in tractor prices, therefore, mean a great deal more than would be the case had they been made on some other commodities. It is common knowledge that unusually strong competition has played a prominent part in bringing about the present low prices for tractors and that these prices are not justified by the recent cost of production.

However, these facts are of no moment to the farmer. The point which most vitally interests him is that the prices are down to an unusually low point, and this condition represents a very strong



IMMEDIATELY upon receipt of the announcement of the tractor price cuts many dealers began an intensive advertising and canvassing campaign, emphasizing low cost of farm power. They convinced the farmer and sold several tractors. If others can do it, you can. Start now.



advantage for him, regardless of what the low prices may mean to the manufacturers.

Tractors Almost Half Price of Year Ago

Tractors produced by old and well-known manufacturers and which have proved their value on Canadian farms by years of successful use, can today be bought for about half the price at which they sold only a little more than a year ago.

Thousands of farmers profited by purchasing these machines at their old prices; it should be an easy matter, therefore, for the average farmer to make one profitable under existing conditions.

It is up to the dealer right now to impress upon his customers the absurdly low cost at which tractors can be obtained this year and the possibilities which these low prices offer. No time should be lost in taking such action. The spring season is only a few weeks off at most, and the campaign for 1922 business should be under way right now.

Many dealers have already started on such a programme. Immediately upon receipt of the announcement of the last price cuts, they began an intensive advertising and canvassing campaign, for they realized what these low prices meant to the farmers and themselves. They had been quite confident of selling tractors, even at the old prices, and with the heavy reductions they realized that they had a golden opportunity to establish tractor farming very generally in their community to the mutual advantage of themselves and their customers.

The results of their efforts have been, for the most part, very satisfactory, as is only to be expected, because if the proposition is put up to a thinking farmer in the right way, he cannot help but see that it is to his advantage to obtain a mechanical power plant under existing conditions.

Low Price Should Have Premium In Campaign

The dealer's campaign along this line should be carefully planned so as to insure bringing his proposition to the attention of every possible prospect. If he is handling the product of a large manufacturer he will, of course, be assisted to a considerable extent by the national advertising of the manufacturer,

but he should by no means depend upon this to reach all his customers. He should promptly place his message before the farmers of his community through the medium of his local paper and continue to run such advertisements. At the same time, it is highly advisable to send a personal letter to every man he has listed as a possible tractor prospect, or who he believes could possibly use a tractor. Both the advertisements and the mailed literature should extend an invitation to the farmer to visit the dealer's place of business and talk over the matter of a tractor at the new low prices.

Nor is this all; he should as rapidly as possible canvass all his tractor prospects by a personal call of himself or a representative. He must realize that the business is there and in large volume under present conditions. The experiences of dealers who have gone after the business since the latest price cuts proves this to be the case. The above outline of a campaign is not simply theory, but describes the methods which have been followed during the past few weeks by several dealers who took prompt action,

and the results were a surprise not only to themselves, but to many other people who did not believe that tractors could be sold so rapidly. In one case a dealer who had started a campaign similar to that above outlined waited until the third or fourth day and then started canvassing, with the result that he took orders for two tractors the first day and two more the second, and felt confident from his experience that these results could be continued for at least several days in his immediate vicinity, and he was working only with men he had on his list of prospects, while there were undoubtedly a great many others in his vicinity who would buy tractors when properly approached.

Some one has very aptly described the market for a commodity as a pyramid which is being sliced off, beginning at the top, but with every reduction in prices a greater number of buyers is reached. In other words, as the price is reduced, there is a much larger number of people who can afford to buy. This is just as true of the tractor as of other things, and the recent price cuts have uncovered a possible market for tractors greatly in excess of that which has been available in the past, for at present prices it may almost be said that it is an exceptional farmer who cannot afford a tractor, while heretofore the opposite has been true.

It is certainly up to the dealers right now to carry the message of farm power at low cost to the farmer. The price of grain has been increasing and the outlook for the 1922 crop is by no means a dreary one. With tractors at their present price levels and with the liberal terms which some of the manufacturers offer, almost every real farmer is fully justified in purchasing a tractor, and it is quite likely that a large percentage of them will do so if the proposition is properly presented by the dealer.

Let 'Em Know You Have It!

(Continued from page 6.)

of something else that you've had for some time and would like to get rid of—AT A PROFIT.

Clear off the top of your counter or show case and put on top of it ONE of these articles where it will be in front of the hands of everybody who steps up to this counter. Then, every time a customer picks the thing up ASK 'EM TO BUY IT. After he has bought it and gone, set out another one.

A merchant in Pennsylvania sold a wagon load of jacks by putting them on the floor inside the front door where every one who came in nearly stumbled over them.

Try the display idea, and then—
Ask 'em to Buy.
And hear the cash register ring.

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Ask 'Em To Buy Trucks

A NEW transportation era is booming on the horizon. We are on the threshold of a great motor truck and motor bus boom. Everything points to this. Freight rates are so high that shippers of every kind of merchandise in almost every country are clamoring for relief, and there is no immediate relief in sight. Railway companies are losing vast sums now and are hard put to it to operate at present rates, so the prospect of lower railway freight rates is not very bright.

The motor truck is the solution of the problem.

The last twelve months of depression have delayed the progress of truck transportation, but the delay has been turned to profitable account by truck manufacturers in arriving at a more economically correct basis of construction and operation. The next five years will see a great development in truck transportation. Governments are anticipating this by spending millions on highway construction.

The dealer should get busy right now and prepare himself for the service and sales requirements of a mammoth truck development. Trucks will be used by farmers and every kind of industrial and commercial enterprise. The farm market will be limited for some time yet owing to the farmer's present financial standing, but when the farmer again is on his feet he will provide one of the largest outlets for trucks. The dealer can at the present moment sell trucks to town and county councils and to practically every manufacturer and merchant who has hauling to do. But the dealer must ask them to buy.

He must ask them with a thorough grasp of their transportation needs:

With a reliable truck he is in a position to service:
And with his interest in highway development.

The automobile dealer's responsibility in relation to good roads is very great. Without good roads there can be no real progress in truck transportation. No opportunity should be lost in boosting good roads, on them depends the dealer's very existence.

There is every reason for optimism in the motor truck industry. It is going to go over big, as big as the automobile and the dealer who gets busy now will go over with it. There is a truck market right now which the dealer should lose no time in working.

Let's get busy now.

Let's ask them to buy.

Let's keep them sold.

Get Rid of the Chestnut

THE FOLLOWING Tonic Letter distributed among the salesmen of an Ontario manufacturer is so good that we reproduce it here believing it will be found helpful by all our readers:

Among the reports of your daily calls is frequently found one which states that the customer "is not ready to buy."

If you were to follow the annual reports of "new business" closed by the five leading life insurance companies, you would discover they each average over \$100,000,000 new business per year, or a grand total of over half a billion dollars.

This tremendous volume of business, or the bulk

of it, is sold by insurance salesmen to men who are "Not ready to buy."

The volume of business sold in this way can easily be verified by you. The fact that it was mostly sold to men who were "not ready to buy," can also be easily demonstrated.

Call on any ten men you may select, or any ten at random, ask them if they are in the market for insurance—I guess you know the answer in advance—not one is "ready to buy."

Now, if you will stop right here and carefully consider where all this leads to, you will surely come to the same conclusion at which I arrived some time ago. With most buyers, with nearly all—it is always too early or too late to buy.

Billions of life insurance and other commodities are sold every year and will continue to be sold, to buyers who are "not ready to buy." You may well ask what makes this possible. Salesmanship—good salesmanship—enthusiasm—hard work and determination.

If a man can sell a commodity which the buyer cannot see, taste, wear or re-sell, has to die to win, and always out of season—what possible excuse can a man have with a line like ours that is used every day?

Just make up your mind, old man, that good luck is twisting herself all out of shape in an effort to help you out. Just let a warm glow of gratitude permeate your entire system because your man is "not ready to buy."

Remember that when a man is ready to buy he goes ahead and buys—from the first man who offers what he wants—and by the time you get there he doesn't need a blessed thing. Be glad that he is not ready to buy and therefore has not already bought.

When you hear Mr. Buyer say he is not ready to buy—that is your cue to wade in and tackle him hard—make him ready to buy—then sell him quick—and send in his order that night.

If you fail to sell a man who is "not ready to buy"—and who therefore has not bought—then you have fallen down on your selling. Admit this to yourself, try to study out how you have fallen down and tackle the next man with renewed determination.

An order is something like a century plant. It blooms once in awhile, and the time to get the flower is then—later it is gone—some other fellow got it—and its a long time between blooms—and orders.

If you don't get the order right then, the next man to come along will get it. And the "not ready to buy" chestnut is merely a stall to pass the order along to some other fellow for whom he is waiting.

Remember you are a salesman and that your skill consists in making him want what you have to sell right then. You must create a demand for what you are selling—and then fill it with your goods.

In reading this Tonic Talk, don't give it a cursory perusal, but take it in with your ears, eyes and pores wide open—absorb it all—get the point—and admit to yourself that every word is true.

Yours for results.

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Scale of Used Car Allowances

AUTOMOBILE DEALERS throughout Canada and the United States are tackling the used car problem in a manner which must sooner or later make for success. The Automobile Dealers' Association of Hartford, Conn., recently decided on a plan to cope with the situation in regard to the buying and selling of used cars—the plan to be strictly adhered to by all members of the association.

There is a fixed allowance for all cars and no member of the dealers' association will go above that allowance under pain of displeasure from the rest of the members, which will be manifested in most tangible form.

The aim of the association is to stabilize and improve the used car market and sell every used car under an association guarantee. Every car sold is to be put in the best running condition. It is desired to retain control of the used car market and keep that control as far as possible in the dealers' hands.

The allowances decided upon which follow herein after are maximum, and all dealers are urged by the committee to bear in mind that there are such things as sales expense, overhead and so on. These must of necessity be considered in making a sale.

The price derived from the sale of a used car should cover the amount allowed plus the cost of conditioning the car and at least 10 per cent. of the allowance for sales expense. The following prices are figured on the basis of 40 per cent. off the current model price, that is to say, the latest factory list price, to cover normal depreciation, less 10 per cent. more for selling expense and profit as follows:

1921 factory list price, less 40 per cent. depreciation, less 10 per cent. conditioning, less 10 per cent. profit, equals the maximum allowance price for 1921 models.

1920 maximum allowance equals 1921 maximum allowance less 20 per cent.

1919 maximum allowance equals 1920 maximum allowance less 20 per cent.

1918 maximum allowance equals 1918 maximum allowance less 25 per cent.

1917 maximum allowance equals 1918 maximum allowance less 30 per cent.

1916 maximum allowance equals 1917 maximum allowance less 30 per cent.

On cars older than five years the dealer furnishes a net allowance price. The rule works as follows: Multiply all current prices for 1921, whether the car is called a 1922 or a 1921 by 48.6 per cent. for 1921.

Multiply the same price by 38.9 per cent. for 1920.

Multiply the same price by 38.9 per cent. for 1919.

Multiply the same price by 16.3 per cent. for 1917.

Multiply the same price by 31.1 per cent. for 1919.

Every member of the association files with the secretary a list with prices for the various models of the make handled. The allowances are figured according to the above rule and every dealer in the association knows just what those allowances are. And he always has the used car committee or the secretary to fall back on if he requires help. An inventory of used cars in stock is filed at each weekly meeting.

The committee sees to it that each member gets the inventory of the association. The committee has power to act on such special cases as may come up from time to time. Their decision is subject to appeal to the board of governors.

If a dealer has a trading allowance from his factory or is willing to cut off his list price for his own reasons or desires to sell quickly certain models that may soon become obsolete, he is at once to advise the used car committee and the association of the amount of cut or allowance, though he need not explain his reason. When such dealer handles trade, he should quote only regular allowance figures, the object being to put everybody on an even basis and not give the public the wrong impression as to the value of the second-hand car.

When a customer has a practically new car or one that has been recently conditioned (rebuilt or overhauled) or there is some special condition in which the customer is not satisfied to accept the appraisal, it is understood that any concern handling the deal is to sell the car for the owner, charging him 10 per cent. of the appraised price. Regular allowances are not to be exceeded when the deal includes trading in a second-hand car on a second-hand car.

The association is to furnish appraisal prices on all makes of cars sold or offered in trade on new cars where the prices have not been submitted.

Every member pledges his assistance to his fellow dealers. On cars older than five years dealers must submit net allowance prices on both open and enclosed models by years for at least two years.

This Dealer Sells Tires at a Profit

By Keeping List of All Car Owners in His Territory, Giving Adequate Service, by Sales and Follow Up Letters, Advertising and Window Display, This Toronto Dealer Increased His 1921 Business by Forty Per Cent.

THE tire business has been characterized by many automobile dealers as the bugbear of the automotive industry.

It has been said repeatedly that there is no profit in handling tires, on account of several abuses, such as price cutting on the part of the dealers; selling to commercial accounts by some manufacturers, and competition by illegitimate dealers.

Yet in face of all that there are some dealers who have been able to maintain a respectable and profitable volume of sales. The J. P. Holden Tire Co., of Toronto, dealers in Ames Holden tires

and Tubes, belong to this latter class. They have been merchandising and repairing tires in Toronto since 1900; in fact they operated one of the first exclusive tire repair shops in Canada. During 1921 they registered the best year's business since 1914. Their books show a 40 per cent. increase for 1921 business over that of 1920. How they were able to do this is told herein. We can let you in on one of their secrets right here and that is—**Hard work and Going after Business—Asking 'Em to Buy.** Their method of securing and handling tire sales and repairs will be of interest to dealers throughout the country.

THE outstanding features which mark the policy of the J. P. Holden Co. in the merchandising and repairing of tires, are:

An up to date list of all car and truck owners in Toronto.

Close contact with customers. Sales and follow-up letters.

Window display and advertising.

Prompt and efficient service.

In compiling the list of car and truck owners the J. P. Holden Co. refer to the official government list of registrations. They keep in close touch with the registration department for the new names being added from time to time. As soon as a name is selected from their list, and after a salesman has called, the Holden Co. makes out a card, or trade report, setting forth the prospect's name and address, phone number, and in the case of a large firm operating a fleet of cars or trucks, the buyer's name.

There is a column for the make of car or truck, another for the kind of tires the prospect is using, and one for recording the date of each call. On the back of the card there is space for remarks.

A credit card is also made out on the prospect at the same time, giving his financial rating and whether the office should mark him "charge" or "C.O.D."

This system tells them all they want to know about a prospect, and provides an adequate safeguard.

Strict Credit Policy

"We are very strict in dealing with charge accounts," said Howard P. Holden, salesman, to Canadian Motor and Tractor. "In the first place, a man must be an A-1 risk before he gets credit; then we insist that all bills be paid promptly when due. We have inaugurated a system of calling a man up on the phone when he allows his account to become overdue. Since starting this practice we have eliminated from our books all bad debts. It works smoothly and our customers have come to recognize it as an established policy and react favorably to it.

"The credit cards are checked up from time to time and should a customer's rating change a new card is made out."

The J. P. Holden Co. maintain close contact with their customers. This is done principally by telephone and through personal calls by the salesmen. If a customer is satisfied with his tires a note is made of it in the space for remarks on the trade card. Should he be disappointed, the reason for dissatisfaction is investigated and a note is also made in the trade card. This system provides a good check of all sales, and gives the customer an impression that the firm is anxious to give him the best service. The Holden Co. attach considerable importance to this phase of their merchandising policy.

Sales Letters

Sales and follow-up letters are sent out at regular intervals. A personal letter is sent to each name on their list. The ordinary circular and form letter

of equipment arranged in such a manner that the buyer is drawn in spite of himself is our method. Frequent changes are also important.

"At night we use colored lights. In all we have about eight different shades. Colored celluloid cut in strips to fit into the bottom of our large roof lights, provides the color scheme. At night after the shop is closed all lights are put out with the exception of those in window. With the jet black background thus obtained, the effect of the window display is very striking.

"We recognize in our window one of our best salesmen, and by using it to advantage it pays our rent."

Handling Adjustments

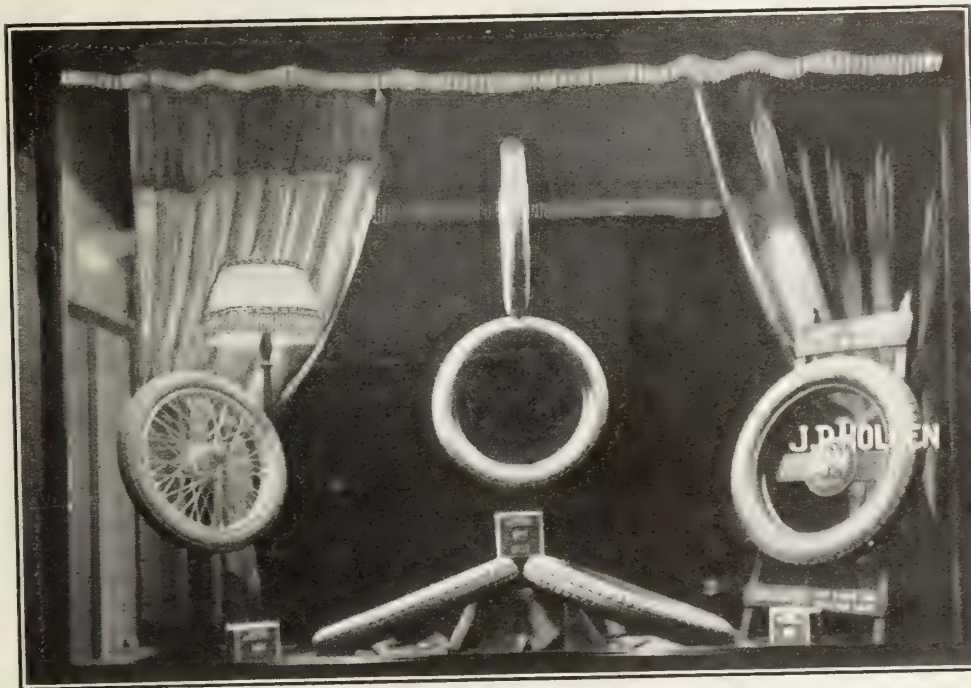
The Holden Co. have a system in handling adjustments which works admirably for all concerned. They never argue with a customer over an adjustment, considering that the customer is usually honest, and consequently, in the firm's opinion, generally right. In their experience the Holden Co. have found that the average car owner hasn't the faintest idea how much mileage he has gotten out of a particular tire, or how long he has had it, and because of this they handle all claims for adjustment with the greatest sympathy.

When a tire is sold the serial number, size, make, buyer's name and address and the date of the sale are entered in a book for the purpose. In this manner a record of every tire and tube sale is on hand for ready reference. No adjustment is made without first consulting this book. As there is no system for accurately judging the number of miles a tire has run, the J. P. Holden Co. fall back on the next best test, namely, the length of time it has run. This is not recognized as being the final word in deciding adjustments, but it is something from which to start.

If a tire is brought in on, say March 1, and the tire book shows it was sold on January 1, it can be safely assumed it was either faulty to begin with or it has had considerable abuse. If no signs of abuse are visible, the cause of the breakdown is marked as "due to factory defects," and the tire is replaced. If abuse is apparent no adjustment is made, and a talk on the proper care of tires is given.

To show how useful this tire sales book is in deciding adjustments so that the customer is satisfied and the Holden Co. is protected, we give the following instance in H. P. Holden's own words:

"In the spring of 1921 a man bought from us two tires, and two months later, when about to go on a long motor trip, he purchased a third. When he returned from his trip he brought a tire in, asking for an adjustment, and claimed it was one of the three tires he purchased just prior to going away. He was angry and expressed his opinion of the tire in no uncertain language. In referring to our sales book we discovered, much to the customer's amazement, that the tire was one he had purchased a year before. There was no need for us to



This is a characteristic window display of the J. P. Holden Tire and Rubber Co., of Toronto. They use colored lights at night and change window frequently. They say their window should pay the rent

is avoided. The letters are individual and carry their message to a particular person. Shortly after the sales letters have gone they are followed up by another, referring to the first and again drawing the prospect's attention to the quality of the goods and the service the firm can offer.

"We advertise extensively," said H. P. Holden, "emphasizing the quality of goods we handle and the service we are prepared to give. No legitimate means of publicity is neglected. For years we have exhibited at the Toronto Exhibition, showing at different times practically every good tire made. In the summer time over and above our regular advertising, we use space in the Sunday papers.

Special Window Display

"Our window is possibly our greatest publicity medium. It is kept clean and attractively trimmed. No tags or signs or advertising matter of any extraneous character are allowed in the window or on the glass. In fact, we avoid all signs, believing that tires and tubes themselves, well arranged, is the most effective drawing power.

"We never have more than five or six tires in the window at one time. A few years ago we made the mistake of thinking our window was a stockroom. In those days we would have two or three pyramids of tires in the window, together with several boxes of tubes, and possibly some tire chains and other accessories if there was an unoccupied inch or two. The public does not want to see how much stock you have on hand. It is sufficient to show the buyer the kind of goods you carry. A few samples of tires and tubes and an attractive piece

say anything, the figures and dates told the customer all he wanted to know. He saw in black and white the service he had gotten from the tire and was satisfied, so satisfied that he bought another right there on the spot.

"This is only one case from dozens I could quote illustrating the usefulness and necessity of some clean-cut system of handling tire troubles and satisfying customers at the same time. If a dealer in some way can show a customer how much service he is getting from every tire he purchases, the dealer's task is accomplished and most of the tire troubles will automatically disappear.

Danger of Handling Seconds

"One grave difficulty in the way of many tire dealers is the handling of 'seconds.' We used to handle 'seconds,' but have given up the practice long ago. No dealer can build a reputation on 'seconds' of anything. He must handle first class, guaranteed goods. There is no adjustment arrangement on seconds; so when a dealer sells one to a customer, and that customer returns some time later complaining of poor service, the dealer has either to adjust at his own expense or lose a customer. The most important thing for any business man to consider is the retaining of customers, and to accomplish this the best goods should be sold. We have customers on our books who have been with us for fifteen years."

Keep Phone Busy

The Holden Co. spend a good deal of time at the phone hunting for business. Their salesmen are

also taught to keep their eyes open on the streets for possible business. If they see a car with tires in bad shape or minus a spare, they take down the number, find out the owner's name from the government registration lists and call him on the phone, or pay him a visit at his home at the earliest possible moment.

Repair System

The greatest business getter, however, is the service department. It is through satisfactory and guaranteed service, promptly delivered, that the Holden Co. build up their business and keep it. When repairs come in a tag is filled out in duplicate. This tag bears the name of the customer, the make of tire and size, the date received, instructions as to repairs, charges, date promised and date delivered. There is a cast-iron rule that repairs must be ready at the time promised. This work card is in three sections, each section bearing the job number. One section goes on the job and stays with it until the work is finished; another section goes to the customer, and the remaining portion, which forms the main card, is put in the "unfinished work" file until the repair is completed and the tire delivered, when it is filed in the "finished work" rack.

The book from which the tag was originally made out holds a duplicate and is at hand at all times for reference. After a job is finished and delivered and an invoice made out, the job card is taken from the "unfinished work" file, and before being placed in the "finished work" file, the invoice number is written across its face. At the end of the month the

bookkeeper goes through the "finished work" file, and if a card is found with no invoice number written across its face, he knows that that particular job has not been billed. The regular accounting system takes care of everything from this point.

Repairs are finished as speedily as possible. The repair department figure on completing even the largest repairs in two days.

On Friday evenings every repair job in the shop is finished and sent out. Saturday is left free for cleaning up and getting ready for the next week's work. There is no steaming up on Saturdays, except on a tube plate to take care of small tube repairs.

During the busy season eight men are employed in the repair shop. In the winter time the Holden Co. believe in keeping their staff up to strength. They say it is hard to break in good men, and when they have a competent staff they like to keep it intact.

The Holden Co. make all their own patches during the winter months for spring and summer business. This keeps their men busy and relieves the pressure when the spring rush begins.

"There is no waste in our repair shop," said H. R. Holden. "We cut down all scrap rubber for cement and make patches out of small scraps and cuttings of fabric. We know what every job costs. Every piece of material used is weighed and a record is kept on transactions over a certain period. This method eliminates the possibility of serious leaks and enables us to figure closely on repair work and give our customers the best possible value for their money."

"Bargain" Attracts Used Car Buyer

The Price Is the Dominating Factor In Selling Used Cars. Buyer Wants to Feel He Is Purchasing a Usable Vehicle Which Looks Well and Is Low Enough In Price

THERE HAVE been many suggestions for the amelioration of the used car problem, which is now being keenly felt by automobile dealers. This problem has been with the industry from the very first but has only lately attained such proportions as to cause a check to the business, and therefore, arrest the attention of salesmen, merchants and manufacturers.

It is obvious, that if the automobile is to be accepted as necessary to community life, and, if it is like most human achievements, subject to depreciation and deterioration, there is going to be a continual need on the part of users for renewals and for disposal of old cars. This means that the used car problem cannot be eliminated from automobile sales, and must be faced up to and some common sense business methods applied to the solution of it.

The suggestions are of various sorts, starting with the idea of making the users sell their own cars, setting a price limit by a fixed annual depreciation, and winding up with the suggestion that the manufacturers should provide the solution, either by subsidizing used car depots or by rebuilding used cars or absorbing a part of the dealer's expense in so doing.

Who Should Sell The Used Car?

Any plan that will help merchandising of automobiles is worthy of consideration. The point that continually seems to confront us after all these plans have been explained is that someone has still to go out and sell the used car to the public—and therein the difficulty lies.

Setting aside consideration of difficulties which have perhaps contributed to the present acute situation such as the extraordinary prices paid by dealers and the public for used cars during the war years, when there was a scarcity of new cars, and the rapid reduction in prices of new cars, which have forced losses on those dealers who found themselves with used cars on hand—it seems reasonable to consider the matter from the standpoint of a present-day problem and one that is likely to be with us for many years. In all lines of merchandise there are second-hand articles for sale. In small wares it is usual for the owners to dispose of their own through classified advertising in the newspapers. When it comes to disposing of a used house and

By J. R. MARLOW
Secretary-Treasurer Willys-Overland

buying a new one, or a piano or an automobile, the services of the agent or dealer are requisitioned.

It seems improper to say that a man who has come to regard an automobile as necessary to his business that when the time for renewal comes he must tackle the question of selling his old car himself, and when he has done that he may come to the automobile merchant, who will be glad to sell him a new one. If the owner has to do the hardest part of the work in a sale he is not likely to have much appreciation of the dealer's willingness to sell him a new car and handle the easy end of it.

Are Dealers Concentrating Too Much On Renewals?

Are our salesmen and dealers concentrating too much upon renewal sales? Doctors, contractors, commercial travellers and others who continually use cars are well known. Dealers know that these cars must be renewed from time to time. The result is dealers everywhere are continually canvassing these users and thereby intensified competition is set up. The sale of a car to a user is the easiest sort of a sale because you do not have to argue the usefulness of the automobile. Its value as an aid to business is conceded at once. All that is left is the bargain about price. Under intensified competition dealers bid against each other for the sale. The owner, quick to realise an opportunity, keeps them bidding until he has secured the highest price for the used car, which is usually much more than it is worth. Salesmen everywhere are neglecting that group of people who have not yet owned cars and when they buy will pay cash, in favor of those who continually use cars. In following this line of easier business they miss the better opportunity of seeking and securing new business.

Many dealers are afraid to tell prospective buyers the true value of a used car when being traded in. Mr. Owner says: "You sold me this car for \$1,200.00 and now you tell me it is worth only \$400.00 in part payment for a new car. Where has the value gone?" Instead of facing up to the owner and telling him that the difference has gone in the use of the car by himself for so many thousands of miles that it has depreciated in value and that he has appreciat-

ed his earnings by its use, they fumble around and say: "Well, that is all people will pay for it," or some such remark, which appears to be an evasion and leaves the impression on the mind of the owner that the dealer ought to pay more, but is trying to beat him down.

In all lines of merchandise there is only one thing that moves second-hand goods. If a merchant displays soiled, shop-worn or used goods in competition with his new wares, he invariably announces them with some "bargain" price. If a buyer appears and the price of the second-hand goods is within 25 per cent. or 30 per cent. of the new goods the second-hand goods suffer in the estimation of the buyer, and he is inclined to take new goods. The thing that attracts a buyer to the used article is an announcement that he is getting it at a very special price. Terms like "Half-Price" or "Less Than Half-Price" immediately attract attention, and at these figures used cars can successfully compete against new goods.

Used Car Must Be Attractive and Serviceable

But that is not all. A second-hand car offered for sale is presumed to have in it some useful service and to be suitable to the needs of some buyer. He must first be attracted by the price. After that he must be shown a car that looks exactly what the dealers claims it to be, namely, a useful vehicle with some thousands of miles of service left. In other words, a second-hand automobile has to be put in such condition that it is capable of demonstrating its usefulness, and, furthermore, is sufficiently attractive in appearance as well as in price to be acceptable to the buyer and to compete with the lower-priced new cars.

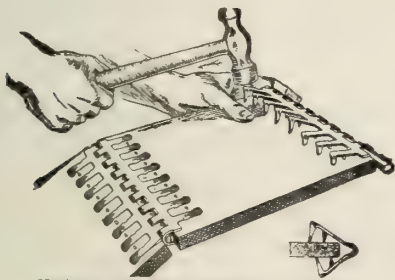
Used cars fall into two classes—either they are junk and should be bought and sold as such, or they are useful vehicles of transport, and if they purport to be this they must have that appearance when they are shown to the public. The used car problem seems to settle down to the ability of a merchant to properly size up which class a used car falls in, to be able to manfully stand up to this position when taking the used car from the owner, to buy it at a sufficiently low price to allow for the necessary work to make it useful, attractive in appearance, and to be sold at a "bargain" price.

How ALLIGATOR Sales Benefit the Dealer and the User

Easily Applied, Time Saving, ALLIGATOR STEEL BELT LACING Wins Immediate Approval ---and Praise for the Dealer

The customer is quite likely to consider it a personal favor when a dealer calls his attention to such a valuable time and money saving article as Alligator Steel Belt Lacing.

He not only buys that article confidently but his belief in the dealer is strengthened—and that means more business with its resultant profits for the dealer as time goes on.

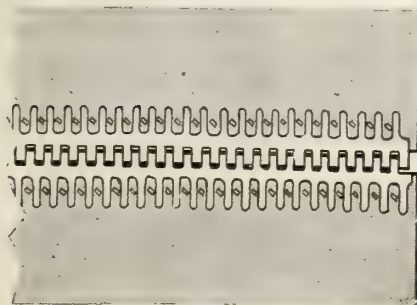


Nothing needed but a hammer to apply it—and you already have a hammer.

Anyone Can Apply Alligator Quickly

Possibly not one person in a dozen knows or understands the principles of lacing a belt with rawhide. The result is poorly made joints that break at most inconvenient times, causing delays, annoyance and extra work. Sometimes a broken belt will hold up the whole crew of workmen for an hour or more.

Compare the old method of lacing with the use of Alligator Steel Belt Lacing. A few blows with the hammer and it is in place. No skill needed. No experience, no tool but a hammer, and just a very few minutes to do the job. The result is a permanent hinge joint that will go wherever the belt will go. A joint no thicker than the belt and, in hundreds of tests, proven stronger than any other belt lacing on earth.



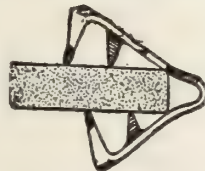
Section of Belting laced with "the Strongest Belt Lacing on Earth."

Packed Conveniently in Small Packages

To meet the requirements of the trade we have packed Alligator in packages of moderate quantities supplying the necessary hinge and gauge pins in each package and giving on the cover in unmistakable terms the very simple instructions for its application.

No. 25 Alligator

—the General Purpose Farm Belt Lacing



For all belting from 3/16 to 7/32 inch thickness, which includes practically all work done with small farm engines and light drives.

This includes heavy single leather and "single" or four-ply fabric belts. Will run over all pulleys of 3-inch diameter or larger. Box No. F25 contains sufficient Alligator in 8-inch lengths to lace 48 inches in width of belting.

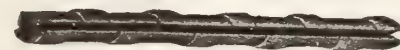
For Thresher and Tractor Drive Belts Sell No. 35

For double leather and "double" or five-ply fabric belts up to 5/16 inch thick. This includes practically all the belts driven from medium and large sized farm engines and tractors, including threshers, saws, etc. Will run over all pulleys of 6 inches diameter or larger.

Box No. M35 contains sufficient Alligator in 8-inch lengths to lace 32 inches in width of belting.

A Size for Every Belt

We describe here only two of our most popular sizes but Alligator Steel Belt Lacing is made in eleven different sizes to care for every possible thickness and type of belt from printers' tape belts to gigantic belts of five-eighths inch thickness. Should you meet special requirements among your mill, factory, mining or other customers, you may recommend Alligator to them as confidently for one size belt as another. Regardless of the kind of belt, its width or speed, the use of idler pulleys and difficult drives, the extra strength of Alligator will give better service than any lacing ever devised.

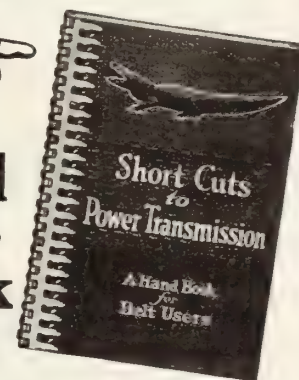


Rocker pin makes possible the use of a hinge belt joint in damp places and under heavy loads where a rawhide pin will not stand up.

Thus, with its simplicity, its broad field of usefulness, its time and money saving features, and its excellent performance, Alligator Steel Belt Lacing merits a place in your stock.



Send for this Book Now



Valuable booklet mailed with our compliments tells all the average man needs to know about belting—the advantages of the different kinds, how to care for belts, how to determine width, length and thickness needed, etc. Also explains in full Alligator Belt Lacing, describing sizes and belts upon which their use is recommended. Write now for your copy—thousands already mailed to dealers, technical men, schools, farmers and all classes interested in belting. Use the coupon.



Never Lets Go

Flexible Steel Lacing Co.,

4684 Lexington St., Chicago
135 Finsbury Pavement, E.C. 2, London

Sold by leading jobbers throughout Canada

Flexible Steel Lacing Co.,
4684 Lexington St., Chicago.

Gentlemen: Without obligation, kindly send me price lists and complete details on Alligator Steel Belt Lacing and indicate a convenient source of supply. Also send your book, "Short Cuts to Power Transmission."

Firm Name.....

Address

Name of Inquirer.....



Marvelous new ignition current

HOW this new Columbia Hot Shot Dry Battery does liven up the power! Its spark is so full, so instant-hot. The ignition that cuts out the waste.

A Single Dry Battery of 4 to 12 Cellpower

Squeezes every last atom of energy from every drop of gasoline. More power from less fuel.

For tractors and stationary farm power—for engines in shop, factory, and mill—for quick, easy starting ignition on Fords—always sell Columbia Hot Shot.

Are You Selling

Columbia Dry Batteries?

They are the fastest selling dry batteries on the market—and with the largest turnover. Columbias have been persistently advertised for many years, and this advertising, plus the high quality of the product, has built up a reputation that makes selling easy for the dealer.

Columbias are made by the largest Dry Battery manufacturers in the world. Your jobber can fill your order promptly. Orders placed now will ensure delivery before the heavy selling season.

Made in Canada

CANADIAN NATIONAL CARBON CO., LIMITED
MONTREAL TORONTO WINNIPEG VANCOUVER

Columbia Dry Batteries

—they last longer—

NEWS—OF THE TRADE FOR THE TRADE

ALBERTA

DRUMHELLER:—The incorporation was announced recently of the Western Garage.

CAMROSE:—A new farm machinery business has been opened here by Loddick and Wilson.

EDMONTON:—R. Roach, formerly of Winnipeg has been appointed service manager of the Dominion Motors, Edmonton.

EDMONTON:—H. McNeil, of the Western Garage has put into operation a fast repair truck and a motor cycle squad for road service work.

BRITISH COLUMBIA

VANCOUVER:—A garage and service station costing \$25,000 will be erected here by Mrs. J. Lefevre.

VANCOUVER:—The Stewart-Warner Products Service Station now occupy new quarters at the corner of Granville and Pacific Streets.

MANITOBA

BEAUSEJOUR:—A new automobile and tractor business, the Beausejour Garage, has been opened here.

DAUPHIN:—Dauphin Motors held a tractor school in their garage from February 23 to 25. On Saturday February 25 a special course on the Delco lighting plant was given.

WINNIPEG:—Capital Motors, a new organization dealing in Chevrolet cars and capitalized at \$50,000 have opened temporary offices at 320 Donald Street and service station and showrooms at 46 Harriet Street. This firm will build a large garage and showroom at the corner of Main and Prichard Avenue, North Winnipeg.

WINNIPEG:—Over one hundred dealers and representatives of the western division of Chevrolet Motor Co., held a convention at the Fort Garry Hotel recently. Ross MacKinnon, general sales manager of the Chevrolet Company for Canada, discussed with the dealers the company's policy affecting the dealer and Chevrolet owners.

MARITIMES

FREDERICTON, N. B.:—Phillips and Pringle will erect a garage and office here in the near future.

ST. JOHN, N. B.:—The fine new automobile painting and repair shop of J. M. Dimock and Co., Clarence Street, was badly damaged recently by fire. The rear part of the garage was burned and twelve cars badly damaged.

ONTARIO

FORT WILLIAM:—The Imperial Oil Co., will erect a garage here at a cost of \$15,000.

GALT:—Robin Hood Service Stations, will erect a service station here at a cost of \$10,000.

LONDON:—Thos. Terry will erect a new garage, showrooms and repair shop at a cost of \$25,000.

LINDSAY:—Erection of a garage at a cost of \$18,000 is contemplated by Mr. Fee, of Richmond, Que.

KINGSVILLE:—A new garage and service station to cost \$10,000 will be erected by Birch and Scrigley.

BRANTFORD:—Dealers in Brantford are contemplating staging a motor show in the near future.

MILTON:—Milton and Hamilton are now linked by a motor bus service, which leaves the Government Building here at 9 o'clock, calling at Ash, Tans-

ley, Nelson, Freeman and Aldershot arriving in Hamilton at 10.30 a.m. The bus will make three trips daily.

TORONTO:—G. E. Gooderham and Co., announce the appointment of Frank Warren to their sales force.

CREEMORE:—W. M. Jardine, has re-opened the garage on Collingwood Street formerly operated by G. Scriver.

LONDON:—W. C. Morrison has purchased the garage and property on Fullerton Street formerly occupied by T. Terry.

WINDSOR:—Frank M. Foster, automobile dealer, has secured the contract for a motor street flusher for the Windsor City Council.

TORONTO:—Burkell and Sullivan, agents for Maxwell and Chalmers cars, are planning the erection in the Spring of new salesrooms on Danforth Avenue.

MILTON:—Damage to the extent of \$4,000 was caused to Buck's Garage through the back-firing of a gasoline engine when being cranked by a mechanic.

HAVELOCK:—R. McCutcheon and Son have sold their garage on Orange Street to J. C. Buchanan. The new proprietor has the Chevrolet agency and is equipped to do all repairs.

BELLEVILLE:—W. B. Riggs will build a new garage and automobile display room on Front Street. The new building will be of brick and concrete, two storeys high, with showrooms, offices, ladies' rest rooms, etc. Building will commence in the early Spring.

TORONTO:—Considerable damage to automobiles was caused when a spark from a back-firing car set fire to the Wychwood Garage, 1415 Bathurst Street, recently. The building suffered a loss of \$1,000, while cars stored were damaged to the extent of \$10,000.

QUEBEC

MONTREAL:—A new garage will be erected by R. Benoit, 96 Park, G. E. Cartier.

SASKATCHEWAN

ROSTHERN:—H. P. Leggo has taken over the garage formerly conducted by A. Kralej.

STOUGHTON:—H. Ogden has purchased the automobile business formerly conducted by Allan and Young.

REGINA:—The Saskatchewan Motor Co., recently purchased property on Victoria Avenue and will build a large automobile showroom and service station in the Spring. The company are distributors for Ford cars.

INTERNATIONAL CUTS TWINE PRICES

The International Harvester Company of Canada, Ltd., announces its twine prices for 1922 as follows:

Standard, 500 ft.	11½ cents per lb.
Standard Manila, 550 ft.	12½ cents per lb.
Manila, 600 ft.	13½ cents per lb.
Superior Manila, 650 ft.	14 cents per lb.

These prices are f. o. b. the usual shipping points and are subject to the usual quantity and cash discounts.

The twine prices just quoted are the lowest for some years and are lower than are warranted by raw fibre costs. As a matter of fact the fibre market shows a distinct trend upward, which if maintained will necessitate higher prices for twine.

Low operating cost per ton mile
is the final test that makes

RUGGLES TRUCKS

supreme wherever motor trucks are
serving the transportation needs
of the present day



"There's a RUGGLES for every purpose"

RUGGLES MOTOR TRUCK COMPANY, LIMITED
LONDON . . . CANADA

"Canada's largest exclusive truck builders"

Increase Your Truck Sales by Boosting Good Roads

The Dealer Can Do a Great Deal to Further Truck Transportation by Interesting Himself in Highway Construction. He Should Be a Leader in His District in Every Movement to Better Road Conditions

DEALERS in automotive equipment have become so accustomed, on the one hand, to customers' complaints about the condition of this or that road, and, on the other hand, to broken promises of road improvement that the majority of them reply to all comment with a cynical shrug of the shoulders. Yet good roads, as a system, are gradually becoming a reality as time passes. During the last decade, rapid development of an industry or of a project that has been so universal, that three or four years of agitation for good roads seems a long time. Yet the people of Nova Scotia, New Brunswick, Quebec and Ontario thought and talked for thirty years about a railway uniting the provinces before the Intercolonial Railway was completed in 1876. Today, public opinion from the Pacific to the Atlantic is solidly behind the good roads movement.

British Columbia is alive to the money-making possibilities of tourist traffic and good roads are being built in many directions. One great handicap has been the lack of highway connection between the cities on the Pacific coast and the beautiful valleys lying between the mountain ranges of the interior. Tourists may now reach Vancouver from California over well-paved roads, and contracts have recently been made for the construction of a road which will enable them to travel by motor from the coast into the Okanagan and Fraser River Valleys. "We have demonstrated," said Mr. J. R. Davidson, manager of the Vancouver Publicity Bureau, "that getting tourists is a business proposition. The financial houses recommend it as one of our resources, and that is a great change in their attitude from a few years ago."

It has been announced that the Saskatchewan Good Roads Convention will be held in Weyburn on March 22 and 23, while another will be held in Alberta in the near future. In Manitoba on February 23 a delegation consisting of the reeves of the municipalities, officers of the Manitoba Motor League and Winnipeg Automobile Club and Good Roads officials waited on Hon. C. D. McPherson, Minister of Public Works, and presented a resolution calling for the creation of a system of provincial highways.

The 20th annual convention of the Ontario Good Roads Association was held in Toronto on March 3 and was attended by 600 delegates. In his address, Hon. F. C. Biggs declared that 1,819 miles of truck roads in Ontario would be metalled by the end of the year 1922, and expressed the opinion that the roads now being built would not meet traffic requirements in five years because of the continued increase in the use of automobiles and trucks.

Quebec and the Maritime Provinces are just as interested in the construction of good roads as those provinces about which details have been given. It is clear that the good roads movement is a mighty one and is certain to bring undreamed-of benefits to the dealer in automotive equipment. As the one person in the community most vitally interested in the promotion of highway transportation how may the dealer bring his influence to bear upon its growth?

Need for Dealers Organization to Boost Highways

Over in Brooklyn there is an organization whose methods of doing business might be emulated throughout Canada. It is the Brooklyn Board of Garage Owners and it has been in existence about

By DONALD R. COWAN

six years. Primarily the association was organized for the purpose of bringing about better conditions in the trade, but recently it has been fighting for sane highway legislation. It has succeeded admirably in both respects, and now the garage owner in Brooklyn is recognized as a regular business man, entitled to the support of the public. In Alberta there was recently organized a provincial garage-

tween the points in question; running time possible; sentiments of the district under consideration toward existing and proposed service; sufficient financial support, traffic laws and municipal regulations.

Away in the yester years there was a time, possibly when every city and town provided an adequate market for the production of the surrounding country. But this certainly is far from true today on account of specialization and mass production in farming. Vegetable farmers at Leamington, Ontario, ship their products to almost every city in Canada,

while apples from the Okanagan Valley in British Columbia and potatoes from New Brunswick are consumed in Ontario. Railway construction made these long distance shipments possible. Highway and motor truck construction, on the other hand will have the tendency to revive the local market and to promote a more uniform economic development of urban and rural life throughout the country.

The dealer should understand these broad questions and be able to see the effect of unwise legislation. For example, he should understand how a law forbidding the hauling of loads weighing more than two or three tons, as the case might be, obtained by hauling larger loads. He should be able to show that it would benefit the community to a certain extent if roads were constructed which would stand the wear and tear of heavy truck loads.

Not long ago the following statement was made:—"The number of pounds of tractive force necessary to pull a ton over different surfaces clearly shows the case against the earth road, even when kept free from ruts."

Quality of road	Force Required to pull one ton
Street railway tract	20 lbs.
Asphalt pavement	20 lbs.
Stove or wood pavement	30 lbs.
Macadam (good)	35 lbs.
Macadam (poor)	50 lbs.
Gravel, good hard road	75 lbs.
Clay, good hard road	100 lbs.
Earth, loose	300 lbs.

From the above it will be seen that a horse or truck can draw on a common macadamized road more than three times as much as on a gravel or earth road. This information may or may not be true (it probably is fairly accurate) but it is data of a similar nature that the dealer, on account of his key position, is particularly able to obtain and to present to the press and the public.

Our members of parliament are trying to legislate wisely about things regarding which they know very little. They are usually open-minded and willing to learn. It is, therefore, a question of presenting correct information to them in simple, concise language, so that they can understand it. If the local dealer or his association will do this, they will be most influential. The dealer must be the backbone of a fight for proper legislation because he is giving his entire time and attention to the improvement of the industry. In contrast the user of trucks is only interested in motor transportation as a means of hauling his products and his main attention is given to his own factory production.

The dealer and the manufacturer must be the leaders in the movement for proper legislation; but as



This is a specimen of the good roads now being built by the Ontario Government. Roads such as this will hasten the dawn of a great transportation era. Dealers and manufacturers should lead in all movements for proper road legislation

men's association but its strength has yet to be felt.

There is need for an automotive dealers' association in every Canadian town and city. Through it good fellowship and the interests of the local trade might be promoted. More necessary at the present time is the influence which might be brought to bear in favor of road construction and of proper highway regulations. The association might study and advise the municipal authorities how highway projects might be financed and how each taxpayer benefits by motor transportation even if he does not operate an automobile or truck himself. Every man, woman, and child in every community should be shown how highway transportation lowers freight costs and the cost of living, how it promotes the growth of industries in the small towns and the country rather than in large railway-terminal centres, how it aids the small town merchant re-asserting his right to be the farmer's supplier.

Some industry may spring up in the local community which is possible only because of the economies of highway transportation. Local dealers and their association are in a most advantageous position to seek out these new opportunities and to advise officialdom where roads should be built.

In making surveys relative to the establishment of highway freight lines and in placing the results of the surveys before the public (especially persons with capital) the local dealer or dealers' association should give careful consideration to the following items:

All year around road conditions, including bridges; freight and express rates; frequency of existing service; time of delivery of existing service; amount and kind of freight moving in both directions be-

To— McCormick-Deering Dealers

Equipped *complete* with lettered body, enclosed cab, truck cord tires, starter, electric lights and horn, power tire pump, etc.—just like the illustration. Dealer's name goes on the door.



The great job of the hour is selling Titan 10-20 and International 8-16 Kerosene Tractors at the new low prices. These prices, together with the special plow offer, are uncovering prospects where nobody ever thought of looking. You are going to be mighty busy this Spring.

HAVE YOU EMPLOYED YOUR HELPER?

The livest, brightest, most valuable helper you can find for going after the tractor business—or any other business—is The International Speed Truck, painted red and made up specially for our McCormick-Deering Dealers. If you have not ordered yours yet—reach for the telephone right now. The time is short.

THE most enterprising thing any McCormick-Deering dealer can do right now is to put this assistant on the job. With it he can make the most of the 80-day tractor drive. After that his International Speed truck will continue working for him day in, day out.

The snappy appearance of this sturdy Speed Truck has earned for it the name "Red Baby." Its ample carrying capacity, its wide range of speed, its clean-cut lines, and its easy riding quality, adapt it peculiarly to your requirements. It will form the heart of a willing, rapid, dependable service, powerful in winning customers, equally powerful in holding them. Painted in a snappy red with gold lettering, it has advertising value of first rank.

As a canvassing asset for the machines of the McCormick-Deering Line it has tre-

mendous value. With its long wheelbase, its well balanced chassis, its spring mounted seat, well padded cushion and lazy back, it rides as comfortably as the average touring car. These are days when farm-to-farm canvassing is absolutely essential in getting maximum business at maximum profit. What better order-pulling combination could be found than a competent salesman with seasonable machines—all riding into the farmyard on this attractive model S Speed Truck? It cuts the time on the road between calls and makes each call count to the utmost. It forestalls "near sales" by bringing together the salesman, the buyer **AND THE GOODS.** And all this takes place on the farm where no distracting factors enter.

Time is especially valuable now! Telephone the branch house today!



INTERNATIONAL HARVESTER COMPANY

OF CANADA LTD.

HAMILTON CANADA

WESTERN BRANCHES — BRANDON, WINNIPEG, MAN., CALGARY, EDMONTON, LETHBRIDGE, ALTA.,
ESTEVAN, N. BATTLEFORD, REGINA, SASKATOON, YORKTON, SASK.

EASTERN BRANCHES — HAMILTON, LONDON, OTTAWA, ONT., MONTREAL, QUEBEC, QUE., ST. JOHN, N. B.



The Beaver Bullet

---the Super Speed Truck!



A wonderful volume of sales awaits every Dealer who is able to place the *Beaver Bullet* in the hands of the truck buying public this year.

This super Speed Truck, the only Canadian Built truck embodying all the Quality units enumerated, has been especially designed and built to meet the need of greater economy in motor transportation.

**Beaver
Bullet**

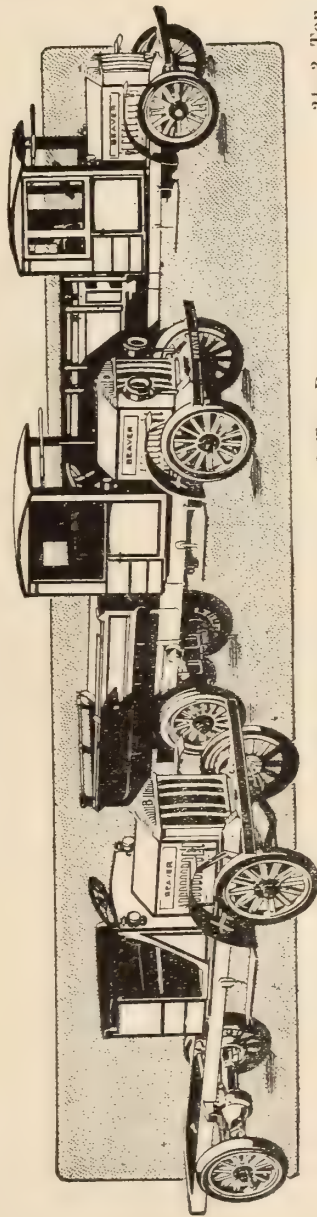
buyers in every community.

Beaver Guaranteed Service with free monthly inspection, is the keynote of our DOMINATING Advertising Campaign now appearing in the leading newspapers and farm publications.

This is made possible by the establishment of *Beaver* Sales and Service Stations in every town and village. Factory owned demonstrators are provided without charge, and a stock of factory-owned parts is also supplied by the company.

In addition to the *Beaver Bullet*, the *Beaver* Line consists of the *Beaver* 1 1-2—2 ton General Purpose truck, the *Beaver* 2 1-2—3 ton Heavy Duty Truck, and the *Beaver* 3-ton Hydraulic Dump Truck—already popularized throughout Canada by hundreds of users.

Special body equipment including Gas Tanks, Street Flushers, Fire Apparatus, Ambulances, Bus Bodies, Special Delivery Types, as well as the standard stake bodies, and canopy top with panel or screen sides, promptly supplied.



1 1/2-Ton

3-Ton Dump

2 1/2-Ton

Specifications:

Rating, 2,500 lbs.
Speed, 35 miles per hour.
Motor, Buda, detachable head pistons removable thru top or bottom of case.
Bore 3-5/8; Stroke 5-1/8.
Lubrication, forced feed throughout.
Cooling, Centrifugal water pump and 18 inch ball bearing fan.
Radiator, Fin and Tube type.
Carburetor, Zenith 1 inch.
Transmission, Fuller three speed forward and reverse.
Clutch, Fuller multiple disc.
Drive Line, one-piece, Hardy joints.
Rear Axle, Heavy Duty Speed Truck type Timken Bearings.
Chassis, 4 9/16" Channel Steel.
Starting and Lighting, Dyneto.
Ignition, Connecticut.
Steering Gear, Lavine, adjustable nut and gear type.
Tires, 34x5 pneumatic cord, special truck type.
Wheel Base, 132 inches, turning radius 21 1/2 feet.
Battery, Electric Horn or Whistle, Spare rim and Tool Kit standard equipment.

If you are interested in selling and Servicing Canada's best known line of trucks, there may yet be an opening in your territory to secure the *Beaver Truck* franchise.

Wire, phone or write for full particulars today.

BEAVER TRUCK CORPORATION, LIMITED

HAMILTON CANADA

the leaders, they must not forget that they can wield the greatest influence by using the truck owner. Many of the truck owners in the small towns and cities are influential manufacturers and merchants. If the dealers can interest these owners, and thereby, work up a body of public opinion which each local member of parliament cannot afford to ignore, if the dealers say "we are in favor of this legislation; we are opposed to that legislation, because it will affect us so-and-so" there need be little fear of legislation contrary to the best interests of a highway transport. The local dealer could do nothing better than associate himself with his fellow dealers in an organization which, as opportunities arise, might present their parliamentary representatives with reasons why certain legislation should be enacted or rejected, and, above all, why road improvements should advance with the utmost possible speed.

The truck industry is on the threshold of a great farm market. Just as the farmer took hold of the automobile until he became the largest user, so is he about to turn to the motor truck.

In a few years practically all the produce will be



Three stages in road transportation development

shipped from Canadian farms by trucks. This development is inevitable, and an economical necessity.

There is at the present time a growing appreciation on the part of the farmers of the value of co-

operative marketing systems. With the establishment of such systems an outlet for thousands of trucks will be provided.

There is only one thing that can retard the progress of truck transportation and that is lack of good solid highways. The farmer wants trucks and will have them just as soon as he can get the money to buy them. When he does buy we must see that he has a solid road on which to drive them.

An economic expert said recently that the future of motor trucking lies, among other things in:

(a) Construction work.

(b) Bringing farms into close touch with commercial markets, either directly by trucking to neighboring towns or indirectly by making trucking to railroads profitable.

(c) Rapid transit between adjacent towns.

All this depends again on good roads. If truck dealers and those responsible for developing and maintaining our highways would co-operate in devising schemes to speed up highway construction the great truck transportation era would be upon us overnight.

The 1922 Cars Show Many Improvements

In Almost Every Department the New Models Reveal Interesting Developments and Modifications in Design, the Principal Features of Which Are Discussed Here

THE year 1922 will be a good business year if dealers will only do their part, namely keep in close touch with the trend of design in automobiles and equipment. Keen competition will, without avail this year, and it is up to every dealer to learn all he can regarding the latest developments. The following material has been condensed with the idea in mind of presenting to dealers the most important of the changes which have occurred during the past year, and which are being embodied in the 1922 models.

The Engine

Starting with the engine, we find that where light weight and low cost are desired, four cylinders, and thermo-siphon type of water system are installed. Where low cost or light weight are not essential, the six cylinder car with water pump system is favored. The sixes, with careful driving, develop at least 20 miles per gallon, and often considerably more. It's the old story of watching the fuel consumption. Dealers can safely boost 1922 power plants, for they are much improved. Better lubrication has been provided for, and all engines are more accessible. The question of pistons has been carefully studied, and although grey iron is the general rule, considerable advancement has been made on alloy metal pistons of the constant clearance type. In other words a piston which, when it expands, closes a cut in the design, and thus does not change its diameter. However, the development work on this style of piston is by no means finished. Where iron or semi-steel pistons are used, the tendency is to make them very light. In fact some semi-steel pistons weigh very little more than the alloy type. A combination piston, with the shell of cast iron, and the carrier of aluminum alloy is also included in the new designs, this being for the Marmon car.

Makers are favoring the careful finishing of connecting rods, and in many cases they are now finished all over and balanced. In order to secure a better distribution of load on the connecting rod bearings, many makers are flaring the ends of the rods. At the lower end of the cylinder bores, the metal is now being bevelled off, this facilitating the insertion of the piston with rings attached. This is a small point, but an important one to the dealer and service man.

Improvement has also been made to valve mechanisms. Materials used have been carefully selected, and the intake and exhaust valves have now only a slight expansion or increase in length due to heat. This of course means they are able to operate well at all times with a very small amount of clearance. One maker goes so far as to use an exhaust valve of different materials, according to the function of each part of valve.

Several of the new engines provide more space for the water jacket around the valves. This of course is a good thing as it keeps the valve temperature

By D. DICKENSON

down and prevents distortion of the valves or valve seats. Practically all users of the L-head type of engines fit the tappets in removable guides, so that the guides and tappets can be removed as a unit.

The mushroom style of tappet is practically universal among engine builders, and as a rule the tappets are slightly off center with the cams on the cam shaft. The use of hollow tappets has helped to reduce the weight, and results in a snappier action to the engine.

The crankshaft has also been given careful study, and heavier and stiffer styles are being used in the latest engines. A better manufactured product is also in evidence. Balancing of shafts and flywheels is receiving careful attention, and one maker is balancing his shafts, so that when running at 2,000 r. p. m., they are not out more than three-thousandths.

Perhaps the most interesting development of all is the divided flywheel used on the Rickerbacker engine. In this particular case, the total weight of the flywheel has been distributed to the front and rear of the engine. There are two flywheels of about the same weight at each end of the engine, this allowing it to run exceptionally smooth. Other rotating parts, such as clutches and disks are being balanced much better, and of course dealers should emphasize this, as it means longer life and less vibration to the power plant of the car. Taken in all, the machine work and general manufacturing methods on the various parts of engines are much improved, and dealers can say, irrespective of the make, that the engines in 1922 cars are carefully made, and a decided improvement over former years.

Oiling Systems

The pressure feed systems seems to be the favorite, but where a low pressure system is used, the plunger type of pump is still adopted with good success, especially when the engine is not of the high speed type. Where pumps are used, they are much better located than formerly. The gear type of pump is also used, and in practically every case, location, operation, cleaning and accessibility have been carefully considered.

Better provision has been made for the proper oiling of timing gears, camshafts, etc., and more attention is being given to the oiling of valve mechanism. All points of importance have been so designed as to secure good lubrication, but on the other hand the danger of over-lubrication has been guarded against.

Piston rings have been improved, so as to prevent oil getting into the combustion chamber, and the subject of oil dilution has been carefully gone into.

The mounting of engines and accessories has received careful study with the result that easy accessibility is the rule, rather than the exception. Silent chains for driving the cam shaft and auxiliary shaft are in great favor, in fact about 38 per cent. of the cars are being equipped in this way. The other make, a year ago.

Owing to the larger water passage provided in the latest engines there is less chance for block warpage, which is a mighty good feature. The General Motors Co., are speaking about an air cooled car, so that we may see something new in this line soon.

The Frame

Although one cannot point to anything radically new in frame design, they can emphasize with justifiable pride that they are more rigid than formerly. Close inspection shows that as an average the side rails have been made much deeper. This is especially true on the cars which have a long wheelbase. Makers are also placing more cross members than formerly, this stiffening up the frame considerably. Therefore a dealer can safely say that there will be less squeaks on the new type of frame.

The Hotchkiss type of drive is gaining in popularity, and better axle gear adjustment is provided on the new cars. There has also been a marked increase toward the semi-floating type of axle, this style being used on 42 per cent. of the cars in place of 34 per cent a year ago.

Improvements are noted in the releasing of brakes, and the typical practice is to use the internal and expanding types on the rear wheels as before. Some makers favor the propeller shaft brake, and one car has four-wheel brakes, hydraulically operated. Most of the rear wheel brakes are of the wrapping band type. The internal expanding brakes are about evenly divided between the cam or toggle expanded type.

Four types of clutches are used on the new cars, these being the cone, plate, disk and shoe type. More attention has been paid to ease of gear changing, and the weight of the spinning parts has been reduced, in order to make the movement easier.

Better design, material, and workmanship is being embodied in steering gears. There is a tendency to make a more sturdy gear, but this has been going on gradually for years. However, dealers can safely recommend this part of the cars.

The artillery type of wood wheel is still the favorite. The disk style of wheel has gained in favor, but the former mentioned is largest in percentage. A wood disk wheel has been developed, made from the same grade of wood used on an airplane propeller. This style of wheel is about the same weight as spoke wheels, but the makers claim it has four times the lateral strength.

There has been a tendency lately to reduce the

wheel diameter on certain makes of cars, and the Cadillac now uses a 33"x5" tire in place of a 35"x5". The wire wheel still remains popular, but is quoted by many as very hard to keep clean.

Enclosed cars are increasing in favor, and there is an insistent and growing demand for a low priced closed model. It is now a recognized fact that a closed type can be made just as cool in summer as an open model. Thus, they are becoming more favored. Sport models are increasing, while the runabout type is decreasing. The tendency on all models seems to be to get the bodies lower. On many of the new cars it is possible to stand on an ordinary curb and look over the top of the car. Others are a little higher than this, but not much.

More attention is being paid to the comfort of the driver and other occupants. There is more leg room, especially for the driver, and the seats have also been improved on many of the new models, dealers will find that the seats are slanted, and closer to the

floor. The upholstery has also been curved to fit the drivers back. Felt and other sound deadeners have been used on the enclosed models, and in fact all models, both cheap and otherwise, are much better in body construction.

The windshields this year are heavier, and in all ways they have been improved, especially the rain vision. Folding seats, where used, operate easier than formerly. Steering wheel columns are better supported, and body hardware has been pretty well standardized. This is a good thing for dealers and should prove worth while.

The storing of curtains has been solved by one maker by pockets in each door, and others use the back of the front seat for the purpose. Others again have a space in the back seat cushion. An innovation in enclosed car upholstery covering has taken the form of detachable coverings which can be entirely taken off the cushions, backs, etc., and sent to the cleaners to remove all dirt and grease.

New cars are being more completely equipped so far as jacks, tools, etc., and tire changing has also been made easier by means of a dummy hub on the rear of car, on which goes a complete wheel. The instruments are better grouped on the dash board, and some makers are equipping their cars so that a single key locks ignition, gearset, and spare tire. Some cars are fitted with transmission locks as standard equipment.

The old enemy "Rattles" has got a set back this year. Many things have been done to eliminate noises, and with good results.

The electrical system on new cars is much better in many ways. Better wiring methods have been adopted, and all parts are easier to get at than formerly. The chief idea has been to make the system as simple as possible, and above all, fool proof. One type of car has arranged a small light under the hood which comes in handy for night repair work.

Points on the High Tension Magneto

By L. G. HEIMPEL, B.S.A.

(Concluded from February Issue)

THE PRINCIPLE employed in the Dixie magneto is another application of the inductor principle, but is entirely different from the last type. By studying Fig. VII of this article, this will be made clear.

In the first place the rotor shaft does not run longitudinally with poles of the magneto, but at right angles with or across the poles of the magneto. There are two iron rotors fastened to the shaft, one of which rotates close to the S. Pole and the other close to the N. Pole of the magnet. The polarity of these rotors never changes. They rotate between two pole pieces of laminated iron, which are part of the core, see Fig. VII, which carries the usual coil windings.

The action of this type may be explained by Fig. VII; in (b) The rotor is shown rotating in a clockwise direction. Lines of force are travelling from N. to S. Pole; from the N. Pole of the rotor through the pole pieces and core into the S. Pole of the rotor. In (c) Fig. VII the N. Pole of the rotor has been rotated, so that the lines of force flowing through the pole pieces and coil core have been reversed. At each such reversal an electric current is generated in the coil. In (d.) Fig. VII, it will be noticed that when the rotor is in this position the pole pieces are under the influences of both N. and S. Poles of the rotor. This produces what might be termed a magnetic short circuit between each two reversals of flux.

We made the statement earlier in this article that the breaker points must separate just when the flow of current through the primary winding was at greatest intensity. This point is reached when the space X between the edge of the N. Pole of the rotor and the edge of the pole-piece is .020 of an inch in the Dixie magneto. In other magnetos this distance is about the same. The manufacturers' directions should always be consulted in all cases of uncertainty.

A peculiar feature of the Dixie magneto is that the pole pieces and coil assembly are rotated with the breaker box when the latter is turned for advancing or retarding the spark. This means that the space X (c) Fig. VII, at which the maximum intensity of primary current is generated does not vary with advance or retard of spark. This makes for uniform intensity of primary current, regardless of advancing or retarding of the spark.

Practically all high tension magnetos used to-day can be included under one or the other of the above three types. There are on the market at present makes of magnetos of each of these types which are giving remarkably good service, and we feel safe in saying that a good magneto is not so much a matter of type as of design, construction, workmanship and material.

Service Man Should Know Each Type Thoroughly

The service man should remember that no matter what the type, there are certain features in which all high tension magnetos are alike, as follows:-

(1) All have two coils or circuits, a low tension or primary and a high tension or secondary circuit. The terminals of these windings can always be located and the buzzer lamp or meter test be applied for breaks in these circuits. In case of broken windings, repairing is not a tractor service man's job. The magneto should go back to the factory.

(2) All high tension magnetos have a condenser boxed up in some corner of the machine. It may be in the armature itself, in the breaker box, or tucked in the "upper-story" of the arch formed by the magneto. Its purpose is always the same—to prevent the primary current from jumping the gap, and at each separation of the breaker points, burning the points. Violent sparking in the breaker box always means a broken down condenser.

(3) All magnetos have permanent magnets and we cannot help expressing a feeling that too many service men have a habit of blaming any magneto troubles which happen along and for which there seems to be no ready diagnosis on weak magnets. When a magneto has been running well, that is, giving a good spark and suddenly quits, it is the height of foolishness to blame it on weak magnetos. Weak magnets when they do weaken mean

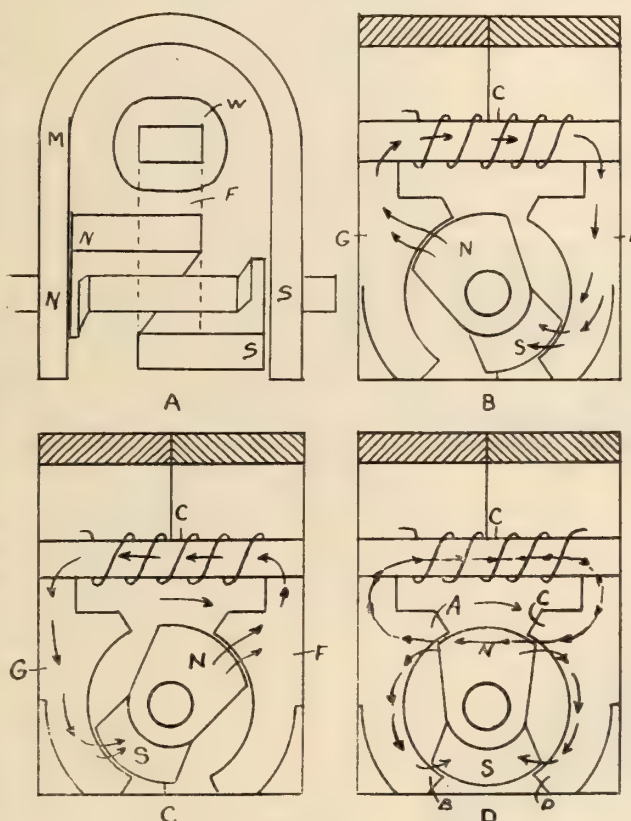


Fig. VII

a weak spark which gradually gets weaker until it is useless. Magnets will weaken with time and use and when no other source of the trouble can be found it is well to be suspicious of the magnets, though it is not a usual thing.

How To Test Magnets.

When removing magnets, the first thing to do is to place an iron bar across the poles of the magnets as a keeper or retainer of the magnetism, it having been proven that without this precaution magnets weaken very rapidly when removed from the magneto. No accurate test for the strength of the magnetism in a magnet is available, but for ordinary purposes it is safe to say that when a magnet lifts a weight of from ten to fifteen pounds of iron, depending on the size of the magnet, it is strong enough to give a good spark. If however, a magnet is unable to raise the required weight, it should be recharged. A good way to form an idea as to what a magnet of a certain make of magneto should lift is to try the test with a magnet from a new and strong magneto.

To test the magnets of a Ford magneto the engine is dismantled and the magnets tested without removing them from the fly-wheel. A Ford Magnet should lift a rectangular block of steel or iron weighing two pounds and the magnets should be strong enough to hold this block when in contact by only one ariss or corner.

Recharging Magnets

It is possible to make a home-made magnet re-charger if the following principles be observed:-

(1) The current used in the electro-magnets must be direct current.

(2) Electro-magnets must be wound so that one is an N. and the other an S. Pole.

(3) The magnets to be charged must be placed in contact with these coils so that the N. Pole of the permanent magnet is in contact with the core of the S. Pole of the electro-magnet and vice versa. The switch is closed and in within a few seconds the magnet should be "shaken up" by light tapping with light hammers near the top of the magnets. Magnets need not be left on the recharger for more than a minute to be fully charged. As soon as the job is done they should be put back on the magneto or a keeper be placed across the poles.

Fig. VIII shows a home made recharger from magneto magnets. Procure two cores of round soft iron, 1-inch diameter and 6 inches long. Wrap these cores with alternate layers of paper and shellac until $\frac{1}{8}$ of an inch of insulation has been built up in this way. Now wrap each core with about 1,800 to 2,000 feet of 18 gauge B. S. cotton-covered, copper wire. This means about seven pounds of wire, per coil. The N. & S. Poles are produced by wrapping the two coils in opposite directions. The two coils are now connected by two ends of the windings, while the other two ends are joined to a direct current electric lighting circuit. When placing magnets on the charger the polarity test is made so that unlike poles will be in

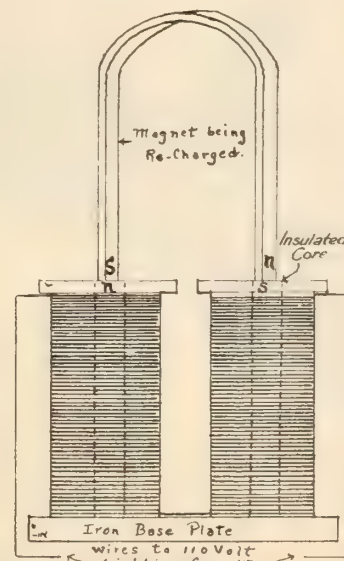


Fig. VIII

contact. The polarity test is based on the fact that like poles repel and unlike poles attract each other.

No part of any gas engine is so important or so delicate as its ignition system and no ignition device yet invented gives as much good service for such a long time and with so little trouble as the high tension magneto.

The Simple Pull of a Lever

Operates the

LEE

Utility

BODY

*A Dump, Express
and Stake Body
for Ford Trucks*



No complicated hoists are necessary with the Lee Utility Body. It dumps automatically and returns to position automatically without the driver leaving his seat, a simple, fool-proof, time-saving body. Note the steep dumping angle; the load has to go.

It can be fitted with stake pockets so that stakes may be used, making it a dump, express and stake body. As such it is ideal for hauling sand, gravel, earth, asphalt, coal, lumber, etc. Easily attached to any Ford chassis.

Write for descriptive circular.

Manufacturers of
Trailer Hoists

DOMINION
TRUCK EQUIPMENT

Dump Bodies and
Truck Units

CO., LIMITED

KITCHENER, ONT.

LETERAIN

Let's go!



"Leterain"
is the World's Recognized
Windshield Cleaner

We guarantee "LETERAIN" to keep your windshield clear during TWELVE HOURS under the heaviest rain or fog and to positively last a whole year, or we'll refund the money. It is the only recognized successful windshield cleaner on the market and stands in a class by itself. It can be used on either wet or dry glass and will give equal satisfaction. Packed in a POCKET SIZE CONTAINER to preserve it from grease or dust when carried in your automobile.

MAIL ONE DOLLAR

and drive your car in safety and with comfort for a whole year under the worst weather. Remember it will keep your entire windshield clean.

Sole Canadian Licensee

The "Leterain" Sales Company
180 St. James Street Montreal, Que.

Territorial agents and dealers write for best proposition in the Automotive Field.



With the Manufacturers

The National Steel Car Corp., of Hamilton, Ont., have opened a branch in Winnipeg with A. V. Harburn as manager.

The Thexton Machine Co., manufacturers of piston rings have taken out a five-year lease of 5,000 square feet at 736 Dundas Street, Toronto.

The Dowsley Spring and Axle Co., Chatham, Ont., for some time will be working 15 per cent. over capacity on account of securing a large order for springs from the Studebaker Coy.

It is reported that the International Harvester Company of Hamilton, Ont., is negotiating for the purchase of La Machine Agricole, de Montmagny, Montmagny, Quebec. It is expected that the sale will be consummated within a few days.

Ten days after having been made general sales manager of Earl Motors, Inc., Jackson, Michigan, George C. Morgan was fortunate in being able to arrange his first train-load shipment of Earl automobiles. This shipment went to some of the largest Earl distributors in the East.

The International Tank and Silo Co., manufacturers of silos, water tanks, etc., will locate in Galt, Ont. Work will commence in the erection of a factory as soon as the frost is out of the ground. The new building will be 200 x 120 feet, single story and will provide work for about 50 hands.

John N. Willys, president of the Willys-Overland Co., believes in personal contact right on the firing line with the men who are selling the Overland and Willys-Knight cars. He has started on a tour of the Willys-Overland branches and distributors, which will include a number of the larger cities.

The Gray-Dort Motors Ltd., Chatham, Ont., are planning to put all their local plants on full production schedule March first, according to an announcement made by vice-president Wm. N. Gray. Mr. Gray is most optimistic over the prospects for the year and believes the tide has turned in industry and that the country will gradually resume normal conditions.

Arthur T. Wilson, for some twenty-six years with the Canadian General Electric Co., and recently sales manager of the Earle Electric Co., has been appointed sales manager of Factory Products, Ltd., 220 King St. W., Toronto. Mr. Wilson succeeds Mr. Langmuir who is severing his connection with Factory Products Co., to engage in another line of business.

It is reported that the Ford interests are considering the establishment of a plant in the Sudbury district. In view of the fact that the tract of land mentioned in the report forms part of one of the principal ore deposits in the province, it is thought the intention is to go into the refining of ore and production of steel commodities used in the manufacture of motor cars.

George C. Morgan, general sales manager of Earl Motors, Inc., Jackson, Michigan, announces the appointment of Ira L. Bell as division sales supervisor of the Middle West. Mr. Bell comes to Earl Motors, with a thoroughly seasoned automobile experience, having been in retail and wholesale work himself, and for several years after this, was district manager for the same company.

Frank A. Seiberling, former Good-year president and his associates announce the following organization which will look after the interests of the new Seiberling Rubber Co.: F. A. Seiberling, president; C. W. Seiberling,

vice-president in charge of purchases; I. R. Bailey, vice-president in charge of sales; W. S. Wolfe, vice-president and factory manager; W. E. Palmer, secretary and assistant treasurer; Wm. A. M. Vaughan, treasurer; H. L. Post, assistant sales manager; H. A. King, manager tire sales; O. H. Walcott, manager merchandise distribution; W. H. Oburn, manager credits; F. R. Griffin, manager advertising.

W. C. Durant, President of Durant Motors, Inc., announces that he has accepted a contract to build in quantity a four-cylinder passenger automobile to be retailed at \$348 in the United States. This car was placed on exhibition at Washington, D. C., on March 9th. The same car will be manufactured and sold to the Canadian trade at prices recently announced by the Ford Company.

The Durant Motors of Canada turned out their first Canadian-made car at their Leaside plant on March 2. Total production for the day amounted to ten cars, and it is expected that output will be brought up to 50 cars daily within a few days. The Leaside plant it is stated, is now equipped and ready for quantity production, and all of the cars to be absorbed by the Canadian market will be manufactured there. The present year's schedule calls for between 12,000 and 15,000 automobiles.

NEW DIRECTORS FOR COCKSHUTT PLOW CO.

AT A MEETING of directors of Cockshutt Plow Company, held in Toronto March 8th, Col. H. Cockshutt resumed the presidency of the company made vacant by the death of Geo. Wedlake. E. A. Mott was appointed general manager and also assumes the position of first vice-president. G. K. Wedlake was appointed second vice president and works manager.

E. A. Mott has been associated with the company for a period of some 32 years, starting as a junior clerk in the office and afterwards as a salesman. The greater part of his time with the Company has been spent in developing the business in Western Canada. Transferred to Winnipeg from Brantford Office in 1892 when Winnipeg Branch was opened, he took management of that branch and later organized the other western branches of the company at Regina, Saskatoon, Calgary and Edmonton, occupying the position of western general manager. In 1911 he was appointed a director and second vice-president in 1919, returning to the head office of the company in Brantford in 1920, occupying the position of vice-president and assistant general manager and in 1921 was appointed treasurer of the company.

G. K. Wedlake has been in the employ of the company for a period of 24 years, devoting his energies to the manufacturing end of the business. For many years he has had full charge of the designing and experimental departments and has taken a large part in the developments of the company's product. He was appointed a director in 1917 and works manager in 1921 and is now vice-president in charge of manufacturing.

H. P. WILSON HEADS DURANT SALES FORCES

H. P. WILSON has been appointed general sales manager for Durant Motors of Canada, Limited. Mr. Wilson, who has been acting sales manager since October, 1921, is a graduate of the School of Practical Science and was formerly with General Motors Corporation under the regime of W. C. Durant.

MAYBE ADAM LAUGHED AT THESE

Let George Do it:—Too many fellows in this town like to stand around and grunt while the other man lifts.—Dahlonega (Ga.) Nugget.

Interior Operations:—"Do you want a job diggin' potatoes?" asked the farmer.

"Yes, provided it's diggin' 'em out of gravy."—Ladies' Home Journal.

Help!—"Does your fiancée know much about automobiles?"

"Heavens, no; she asked me if I cooled my car by stripping the gears."—Harvard Lampoon.

Some Feat:—Professor's Wife—"Why, my dear, you've got your shoes on the wrong feet."

Professor—"But, Henrietta, they're the only feet I've got."—Chicago Phoenix.

The Young Genius:—Mother—"Willie, how is it that no matter how quiet and peaceful things are, as soon as you appear on the scene trouble begins?"

Willie—"I guess it's just a gift, mother."—Life.

Discretion:—"Why don't you tell people that you are a good mechanic?" "And have my neighbors forever wanting me to come over and tinker with their cars? I guess not."—Detroit Free Press.

Everybody In:—"Auto for every 5½ persons in Los Angeles."—Headline, the New York Sun.

The ½ persons are pedestrians who have been run over at least once.—Detroit Motor News.

The Male Prerogative:—Little Bess—"Mamma, do dogs get married?"

Mother—"Certainly not, dear." "Then what right has Prince to growl at Fannie when they're eating breakfast?"—Boston Transcript.

Luck:—"Queer he should have so much luck when he's so much of a wet blanket."

"Luck?" Why, say, if that fellow should jump from the frying pan into the fire he'd put the fire out."—Judge.

Privilege Denied:—A Bradstreet man was taking a Smith Centre man's financial statement the other day, says the Pioneer, and the inquirer asked, "Owe any at the banks?" "No, dammit, they won't let me!" replied the local man, fiercely.—Kansas Notes, Kansas City Star.

Not to be Trusted:—The editor in charge of the personal inquiry column opened his seventieth letter with a groan.

"I have lost three husbands," a lady reader had written, confidentially, "and now have the offer of a fourth. Shall I accept him?"

The editor dipped his pen in the ink. This was the last straw.

"If you've lost three husbands," he wrote, "I should say you are much too careless to be trusted with a fourth."—Toronto Mail.

A Sad Truth:—"My good friends," began a temperance orator in an English town, "drink is the curse of the world. All the crimes, all the wars, all the heartaches of the universe can be laid at the door of intoxication."

He paused significantly and gazed around at his audience.

"Oh, my friends," he continued at last, "what causes more misery than liquor?"

Not receiving any reply to his query, he repeated the question, adding:

"Can anyone tell me that?" The silence was broken by the little man at the end of the hall.

"Thir-r-st!" he yelled.—Pittsburgh Chronicle-Telegraph.



The Genuine "Big Ball" At Greatly Reduced Prices

The farmers want it because it saves time in the field when time counts. If you can supply the demand you can get the business in the face of strong competition.

The "Big Ball" saves storage space in your warehouse because the bales are only a little over half as large.

Made under the following well-known brands:

McCormick Deering International

The new twine prices just quoted are the lowest for some years—and these low prices buy the "Big Ball," making a combination that means business for you if you will order your supply early. Last year the supply ran short and there is going to be a stronger demand this year because of the advertising we are doing in the farm papers. Get your supply in early at the new reduced prices.

Ask The Harvester Blockman

INTERNATIONAL HARVESTER COMPANY

OF CANADA LTD

WESTERN BRANCHES—BRANDON, WINNIPEG MAN., CALGARY, EDMONTON, LETHBRIDGE, ALTA.
ESTEVAN, N. BATTLEFORD, REGINA, SASKATOON, YORKTON, SASK.

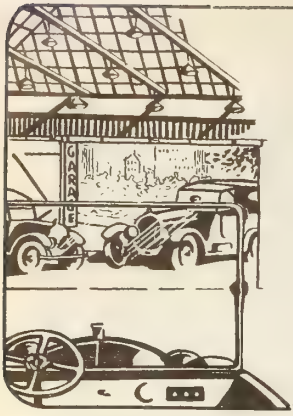
EASTERN BRANCHES—HAMILTON, LONDON, OTTAWA, ONT., MONTREAL, QUEBEC, QUE., ST. JOHN, N. B.

The Reason That Is Back Of The Advertising

The Manufacturer to-day must make the consumer believe in his brand. Live jobbers and retailers buy only the brands that they know are known to the consumer.

Only known brands turn over quickly. The known brand is always the first to leave the dealers' shelves. Quick turnover, quick sales, quick profits—that's what the trade channels are looking for. They don't want a manufacturer's stuff unless its sale is insured by *user confidence and good will*.

It is not the jobber or the retailer who holds the destiny of the manufacturer in his hands: it is the consumer. Manufacturers who have caught this idea, and who have the good sense to apply it are treading the path of success.



SHOP NOTES FOR THE GARAGE MAN



LEARNING TO WELD—Concluded

Hints on Brazing; Welding Rods; Fluxes; Eye Protection; Progress in Welding

THE WELDER should not disregard the possibility of brazing with the oxy-acetylene torch. Brazing is a valuable process which should be used in some cases instead of welding, and the welder should exercise judgment to determine whether brazing or welding is the preferable method. It is true that the oxy-acetylene flame may be used for welding all metals but in those cases where the high temperature might seriously distort or deteriorate the metal or adjacent parts of an apparatus it may be advisable to resort to brazing, especially in the case of brass or malleable iron. A brazed joint well done is very strong, and it is a question whether it is not preferable in most cases to braze rather than to weld it. In the case of malleable iron, brazing with bronze welding rod is recommended for general repairs because malleable characteristics when molten and welded, whereas when brazed its malleable quality is not seriously affected, and the brazed joint will be nearly as strong as the parent metal.

When using the torch for brazing, the flame should be made slightly carbonizing, and it should be held away from the metal to avoid concentrating the heat and to raise the temperature only to the point required to fuse the spelter. The parts should be cleaned and fitted together as closely as possible, and clamped to hold them firmly while being brazed. The welder need have no fear of clamping parts too closely as the molten spelter will penetrate the most closely-fitted joint when properly fused and fluxed. As a matter of fact, the closer the joint the stronger the job when brazed.

Never attempt to weld a previously brazed joint without cutting away all of the brazed metal. Spelter will seriously weaken a weld, and all traces must be carefully cut away before starting to weld. This rule should be scrupulously observed. Brazing is a form of soldering, in fact, it is called hard soldering, whereas welding requires fusion of the metal itself, and it is essential for sound work to incorporate only weld metal of the same physical characteristics as the metal to be welded.

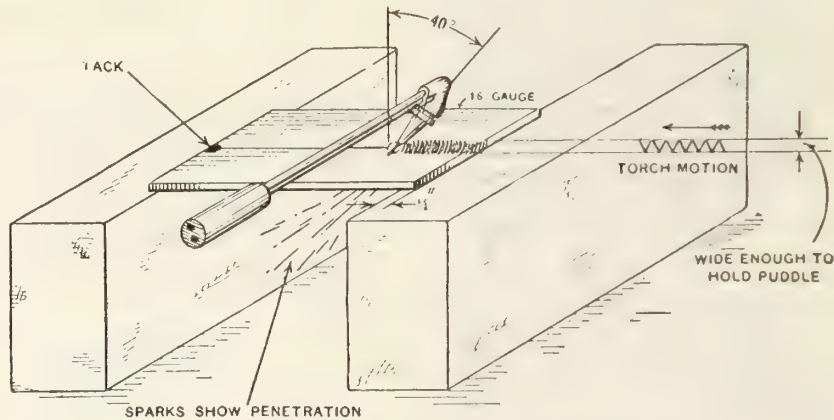
Welding Rods

Adding material, welding rod or filler is necessary to fill the joint and build up the level of the weld flush with or slightly above the margins. Pure wrought iron or low carbon steel wire is used in steel welding; cast iron sticks, for cast iron; aluminum wire, for sheet aluminum; aluminum sticks, for bronze; monel wire for monel; and so on. The rule is to use rods of the same metal as the metal to be welded and of the same physical structure. Rolled or drawn welding rods should be used for rolled metals and cast rods for castings.

Ordinary commercial steel wire or cast iron sticks cannot be used successfully for welding, however, because of impurities present that seriously affect the strength when fused

in a weld. Sulphur, phosphorous and carbon in excess of certain percentages make weak castings. Commercial wire is strong because of the method of manufacture, the bad effects of high sulphur and phosphorous being offset by the refining process of drawing. But when the metal is molten and cast as it is in a welded joint it is likely to be brittle and weak. The same condition holds with cast iron. Foundry iron used for machine castings is unsuitable for cast iron welding sticks. It is too low in silicon to work freely and is likely to harden or make hard spots in welds that ruin cutting tools when machined.

Swedish wrought iron welding rod was used and recommended exclusive-



Manipulation of Torch When Welding Thin Steel Plates.

ly for all steel oxy-acetylene welding in the early days of the industry, and there are still some welders who advocate it to the exclusion of other material. In general, however, welders have discovered that pure wrought iron welding rod is not necessary or even desirable for the general run of welding. The reason is substantially this: The first welders did not fully understand the theory of torch and welding rod manipulation and usually melted the rod with the direct heat of the torch, whereas up-to-date welders know that the heat of the puddle should fuse the welding rod—not the direct flame of the torch. The fusing temperature of pure wrought iron rod is approximately 2780 degrees F. while the fusing temperature of 0.10 carbon steel welding rod is about 2,600 degrees F., and hence the difference in temperature of the two carbon steels is approximately 100 degrees, which is ample for welding purposes. Too great a difference is undesirable in any welding combination. It means that if the correct process of welding is carried on that the parent metal must be overheated in order to fuse the adding material. The tendency then is to melt the rod directly with the heat of the flame and thereby injure the quality of the weld.

The welder should avoid the use of any but welding rods furnished by re-

putable concerns that specialize in these supplies. The money saved in buying low-grade welding material will be lost and much more through poor welds and excessive gas consumption.

Fluxes

The purpose for which fluxes are used is to dissolve oxide and eliminate foreign matter which if left in the weld metal would weaken it. Flux is not required for welding low carbon steel or cast aluminum, but should be used on cast iron, brass, bronze, sheet aluminum, etc. But Deebee flux may be used to advantage on cast aluminum and thus render the use of puddling spoon unnecessary. Whether a flux shall be used will depend on a situation and whether a puddling spoon can be used to better advantage.

Flux is generally applied by thrusting the hot welding rod into the flux box which transfers a sufficient amount to ordinary width joints. On heavy cast iron welding it will be necessary

in correct proportions, nor the experience in buying chemicals necessary. The best advice that can be given to a welder in regard to supplies in general is to buy them from concerns that have made a reputation, and to devote his efforts to his own specialty which is welding.

Eye Protection

Colored glasses in the spectacles and goggles worn by oxy-acetylene welders too often are chosen without due regard to eye comfort and efficiency. Welders sometimes suffer from eye strain because the colored glasses are not fitted to their eyes. The glasses may not shut off the injurious violet rays sufficiently, or they may exclude too much of the light. In one case the welder suffers from glare and in the other he works in semi-darkness. Either condition militates against sound work as the operator is unable to see clearly what he is doing.

A principle to be borne in mind in selecting colored glasses for spectacles or goggles is to get those suited to each individual, which stop off no more of the light rays than absolutely necessary for eye welfare. The welder who can see the puddle and the margins clearly is able to work more surely and with less waste effort than he who sees things indistinctly, and works by feeling rather than by eyesight.

As a rule men of the brunette type having dark eyes require less eye protection than those of the blonde type, having gray or blue eyes.

Some Points to be Considered

When preparing to weld a broken machine member the parts should be lined up and supported so that they will not shift or change their relative positions while the work is in progress. It is usually less tiresome to put small parts on a work bench or other support before which the operator can stand and work with his torch at the waist level than to weld them on the floor.

When cleaning torch tips, never use a steel wire which might roughen the sides of the hole. Use a copper or other soft metal wire instead.

Never use the torch head to knock work into position, nor use the torch as a lever for any purpose. Gross waste like this is the cause of many complaints.

Keep the hose free from kinks and contact with hot metals. Test occasionally while under pressure with soapsuds to discover leaks, or close the needle valves and release the regulator screws. If the working pressure gauge falls off rapidly it betrays a leak. Never continue to use a leaking hose as it is wasteful and dangerous.

Always use a sparklighter for igniting the gas in preference to matches or an open flame. Keep tips in a covered container, preferably of wood with holes bored for each tip to preserve from injury and dust. Welding rods should be kept in a dry place to protect from rust. A rusty, dirty rod is not good for a weld.

Don't throw short pieces of welding rod away. Weld them to a long rod and use up entirely. There is no need of wasting an ounce of any kind of rod.



Something to think about

Whenever you purchase Brake Lining, other than that completely made in Canada, the raw materials have been exported and re-imported.

The centre of the World's supply of Asbestos is in the Province of Quebec, where Asbestonos is made. It stands to reason that shipping costs money, so that when you purchase your Brake Lining from the source of supply you avoid paying for unnecessary shipping.

ASBESTONOS

Brake Lining

Made in Canada

The Asbestonos Company, in an effort to produce a Brake Lining that would surpass all others, has set a standard that every inch of Asbestos must meet. The best Asbestos Fibre produced in the Thetford district is used, and the yarn is interwoven with a double fibre brass wire to give it added strength. After weaving it is thoroughly impregnated with a special compound which renders it impermeable to greases, oils, etc.

"Ask Your Jobber for Asbestonos"

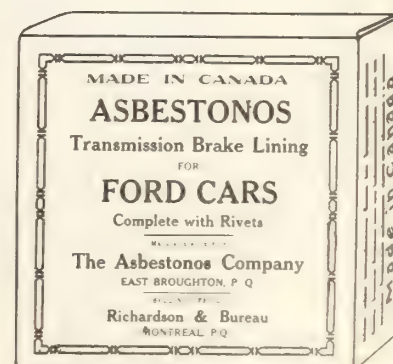
Asbestonos Company
East Broughton, Que.

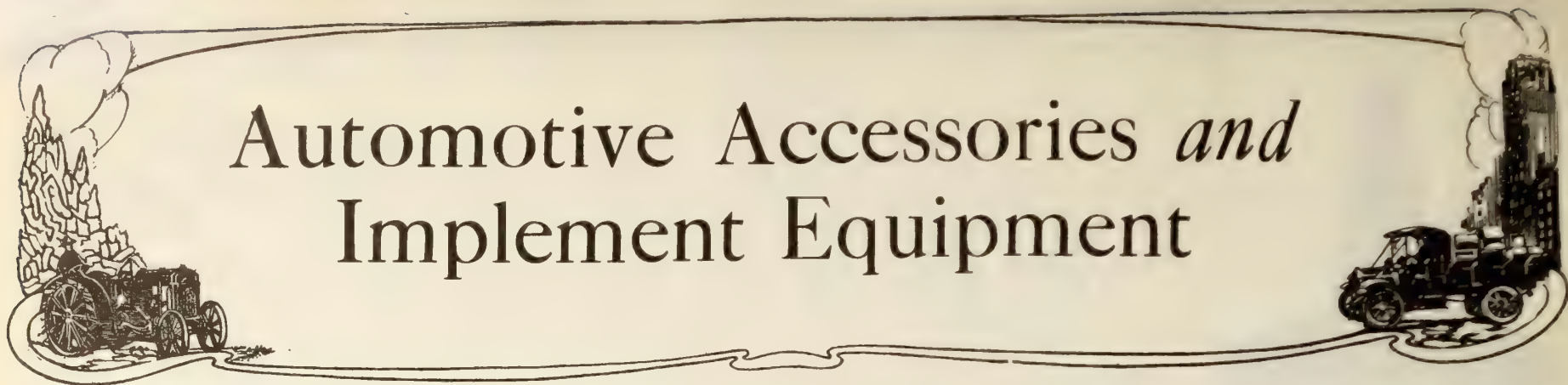
Sole Selling Representatives

Richardson & Bureau
MONTREAL



Brake Lining Racks are supplied free of charge by leading jobbers to dealers and garages who handle Asbestonos Brake Lining.

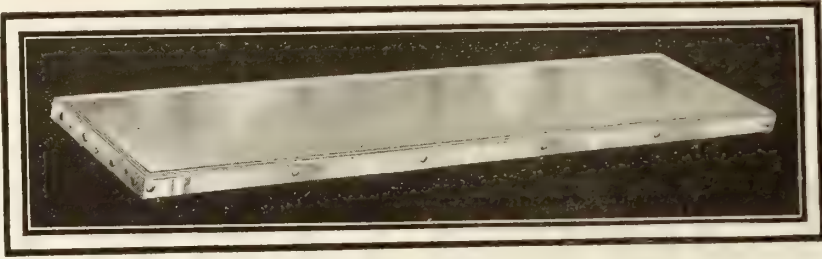




Automotive Accessories and Implement Equipment

A. O. SMITH STEEL RUNNING BOARD

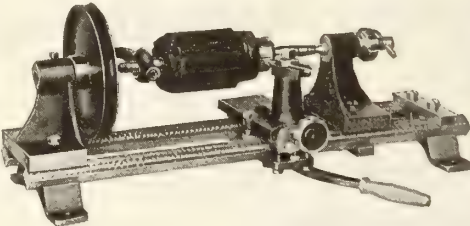
THE Smith steel running board is made of pressed steel and is of the same weight as the ordinary wooden running board. In the event of damage as a result of collision, it can be hammered back to its original appearance. It is furnished in two styles of covering—linoleum and aluminum, and is easily attached. The linoleum is glued to the steel under great pressure and is then edged and rivetted. The aluminium style is fully rivetted. On the under side of these boards there are supports to accommodate the frame brackets. No bolts pass up through the running board surface. Made by the A. O. Smith Co., and distributed in Canada by the Geo. H. Broughton Co., Toronto.



Smith Steel Running Board

STROMBERG GASOLINE FILTER

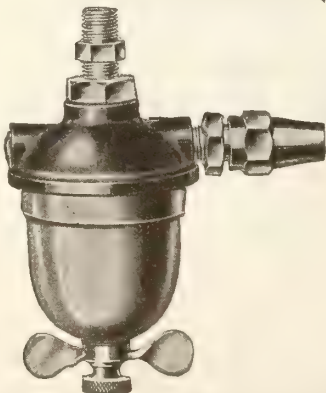
THE Stromberg Motor Devices Company have placed on the market, an instrument for removing all dirt and water from the gasoline. The Stromberg gasoline filter is simple in design, consisting of a sediment chamber, a fine wire mesh screen, and connections for the vacuum tank, carburetor, or gasoline. The screen is a very fine wire mesh and will prevent water or dirt from passing through, and is of such area that the filter will have to be cleaned only at very infrequent intervals. One of the main features of the filter is an automatic needle valve arrangement. When it is necessary to remove the sediment chamber, by unscrewing a thumb nut, the needle valve seats, thus automatically shutting off the supply of gasoline. Unnecessary waste of gasoline is thus prevented, and a lock to the gasoline system is provided. The filter is adaptable to any type of fuel system, it cleans the fuel immediately before it enters the carburetor, and thus prevents dirt or water getting into the small passages of the carburetor, and then into the motor cylinders. When a car or truck is equipped with a vacuum tank, the filter is placed immediately underneath the tank, and screwed into the outlet opening. If there is no vacuum tank the filter can be screwed directly into the float chamber opening of the carburetor, or it can be fastened directly into the fuel line.



Onan Lathe and Mica Undercutter

NIAGARA AUTO HEATER

THE MAKERS of the Niagara Auto Heater claim that it transmits nothing but heat—no carbon, no gases, no dirt, or odors. This is principally, it is claimed, due to two triangular heat chambers. The heat is transmitted from the muffle through a flexible tubing. The two heating chambers in turn transmit the heat to the top or radiating cover of the heater so that nothing but heat reaches the interior of the car. The heat is regulated by a lever device which opens and closes a valve. The heater is constructed of aluminum. To install, a small piece is cut from the floor board and the heater fitted in, attaching the flexible metal intake hose over a hole which is cut in the exhaust pipe, and screwing the heater to the floor. The heater is suitable for both open and closed models and is manufactured for all makes of cars. Manufactured by the Castor Distributing Corp.



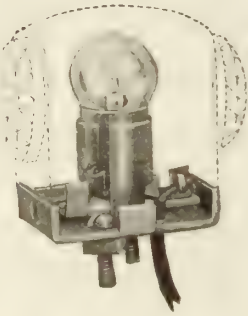
Stromberg Gasoline Filter

ONAN LATHE AND MICA UNDER-CUTTER

THIS is a small lathe so designed that its utility covers a wide range of work particularly in the garage and electrical repair shop. It is possible with this tool to true up and turn the commutator of any starter or generator armature in the same manner as with the large lathes; then without removing the armature the mica between the bars can be undercut. The turning tool is controlled by hand wheel screw feed. The carriage is operated lengthwise by a drop forged handle with suitable adjustment for every commutator. It is driven from any available power. Made by David W. Onan.

NEW TYPE "WICKEY" BATTERY

THIS is a semi-dry battery. The acid and water electrolytic of the wet acid battery is displaced by a semi-solid mixture. There are no separators of the ordinary type. Instead, there are strip isolators which occupy a very small space. They are composed of narrow strips of hard rubber. Three isolators, one at each end and one in the middle, are fixed permanently between each plate. Some of the claims advanced for this battery are: that it is non-freezable; that it operates efficiently without water for periods ranging from three to six months. It is made by the Wickey Battery Co.



Tiffany Parking Lamp

EXPRESS SPARK PLUG

THE principal feature of this spark plug is an oil proof spark gap. A deep, full-length slot in the slanting lower electrode draws oil away from the firing panels by capillary action, it is claimed, and gravity forces it to run off the lower end. There are four distinct types of this plug. Each type comes in several sizes of thread and length to meet the installation requirements and operating condition of every standard engine. It is made by the Express Spark Plug Co.



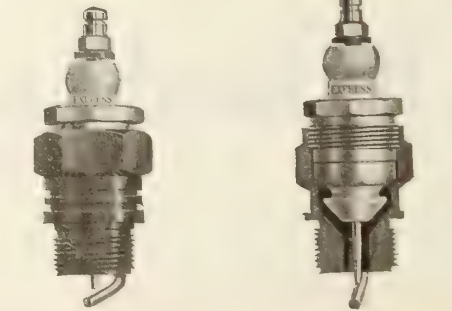
Wickey Battery

TIFFANY PARKING LAMP

THE Tiffany parking lamp is attached to the fender with all mounting screws and connections concealed and fitting flush with the fender surface. The switch is accessible but concealed to prevent tampering by children. Bulbs can be replaced by removing the cover which leaves the lamp socket fully exposed. Standard two candlepower six to eight volt double contact bulbs are used. It is manufactured by the Tiffany Mfg. Co.

WEAVER RIVETING TOOL

THIS tool is specially useful in riveting ring gears. It is designed for use in conjunction with the Weaver press. The enormous pressure that can be exerted by the press on the riveting tool insures the tight fit of the rivets and eliminates the trouble of heating rivets. A heading tool is furnished which will fit both 3-8 and 5-10 inch rivets. It is made of high grade tool steel and is rigidly fastened in its holder by means of a heavy screw. The tool holder will fit any Weaver press screw. It is fastened to the press screw by means of a large set screw. Manufactured by the Weaver Manufacturing Company.



Express Speed Type — showing slanting grooved electrode

Type 3 — Sectional view showing finned insulator



Latest Automotive Accessories and Garage Equipment Catalogue

Our 10th Annual Catalogue of Automobile Accessories, Garage Equipment and Supplies is now ready for distribution. Among the new inventions and productions shown therein are:

Apex Automatic Windshield Cleaner.
M. P. Windshield Wind Deflector.
Presto Metal Visor.
Auto-Ray Spotlight.
Auto Watches.
No. 10 E. A. Motor Driven Horn.
"Aero" Radiator Shield.

Crown Fenders.
Spark-C Ignition Tester.
B. & D. Cushion Accelerator.
Coleman "Quick-Fill Tire Pump."
Lyon Convex Bumper.
Re-Atomizer.
Flowmeter.
Steel Laced Tire Boot.

Warn-U-Signal.
Clasco Stop Light.
O'Hart Clutch Lock.
Reid Oil Tester.
M. & R. Timer.
Chatco Car Heater.
Adamson Heater.
Kennedy Mechanics Kits
Manley Garage Equipment.

Hyslop's 1922 catalogue is a veritable encyclopedia for the dealer as to what is the latest and best in the nature of equipment and supplies for Automobiles, Service Stations and Garages. There are 272 pages, more than 60 of which are devoted to Shop Equipment, while Specialties for Fords comprise a separate section of 50 pages. A copy will be mailed to any dealer on request.

HYSLOP BROTHERS, LIMITED

Shuter and Victoria Streets, - - - Toronto

The Farmer Demands the

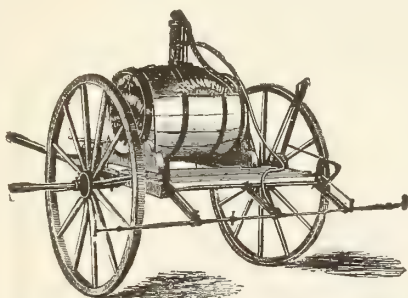
Spramotor
It isn't a SPRAMOTOR unless we made it

Because it is the only 100% effective sprayer.

There are many types of Spramotors, from the hand operated to the large motor run machines.

Every implement agent should be familiar with Spramotors and Spramotor prices to quote to farmers. We want the best men in every district for our agents. Write for agency proposition.

Spramotor Co.
15 King St., London, Ont.



The Farmer Who Owns a Car Will Buy a London Engine

Because he knows from experience with his auto engine that the vertical engine is the best.

**THE
LONDON
ENGINE**

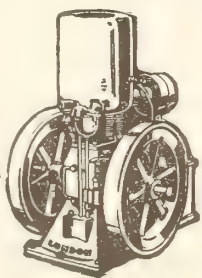
"The Vertical Engine for the Farm"

is easiest to sell because it meets all the demands of the farmer—power, reliability, lowest operating costs.

Write us for agency proposition.

**LONDON GAS POWER
CO., LTD.**

29 YORK ST. - LONDON, ONT



SHARPE WINDSHIELD CLEANER

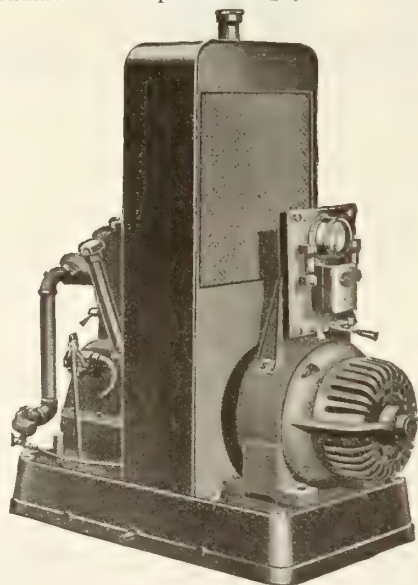
THIS cleaner is in the form of a chemical pad. It is made of genuine leather which is covered with a cloth that has been chemically treated, and it is said will last during the life of



the average car. It is made in a convenient size to fit the motorists pocket. It is claimed that a single application of the pad each time a storm is encountered will produce a clear vision. Made by the Sharpe Chemical Co.

PERFECT-LITE

THIS electric lighting plant consists of a 1½-kw. generator, which is connected directly to a single cylinder engine with a 3¼ in. bore and a 4 in. stroke. The engine operates on either gasoline or kerosene, and the fuel is fed from a tank in the base by suction. The unit is water cooled by means of a radiator. The piston rings, connecting



Perfect-Lite

rods valves, springs and tappets are duplicates of Ford parts.

The generator operates at 1,150 r. p. m. and its armature is mounted in ball bearings. The switchboard is bolted to the top of the generator. The board itself is made of slate and it carries a zero centre ammeter, fuses and switches on its base. The ignition coil and automatic stop relay are mounted on the back. The generator is provided for operation at either 32 or 110 volts. The manufacturer is the Perfection Hoist & Engine Co.

VAN-NORMAN RE-LI-O

THIS MACHINE combines in one compact unit, a grinder for pistons, valves, wrist pins, armatures, valve seating pins and variety of external and internal work within its range, and a turning lathe for regrooving pistons, turning armature shafts and for handling straight or taper turning jobs. The work-head and wheel-head are driven from individual mo-

tors which can be plugged to an ordinary electric light socket. The regular outfit furnished with each machine includes:

Collet shank with face plate and center, draw-in spindle, 1 split collet, 1 piston adapter, piston draw bar with cutter grinding finger rest, internal grinding wheel arbor, 1 external grinding wheel 8 in., 1 internal grinding wheel 1 in., diamond wheel truing tool, lathe tool holder with 1 turning tool, endless belt, set of wrenches, and 1 each ½ and ¼ H. P. Motors. Made by the Van Norman Machine Tool Co.

SCHLECHT SLIDING GAP SPARK PLUG

THE firing points of this plug consist of a Nickel Alloy Steel disk, which is slidably mounted on the center electrode, on the inside wall of the plug shell. At the instant of explosion the disk is thrown upward striking the bottom end of the porcelain,



which is continued at each explosion, thus allowing no way for oil to cross the firing points, but breaking them as they accumulate. After explosion the disk again drops to its normal position at the bottom. This movement breaks any oil bridge which might form. Made by Schlecht Spark Plug Co.

DURO SPARK PLUG

THIS plug is made to fit all makes of cars, trucks and tractors. It incorporates an adjustable spark intensifier and visible spark gap enclosed by a glass tube for safety.

A compensating ring provides for difference in expansion between the porcelain may be removed without taking the shell out of the block. The removing and replacing of the porcelain does not disturb the adjustment of the igniting spark gap. The igniting spark gap between the points will remain set, it is claimed, because the ground surfaces of the porcelain which make the gas-tight joint with the steel shell insures it always coming back to the same position regardless of the number of times it may be removed or replaced. It is made by the Duro Company.

EVERHOT SOLDERING IRON

THIS is a self-heating soldering iron and blow torch incorporating special features of construction. When used as a soldering iron this tool maintains any desired temperature and makes a continuous job of soldering

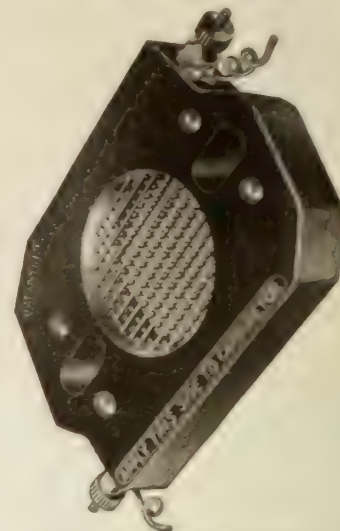


Everhot Soldering Iron

without interruption for changing irons. The needle valve seat and needle valve are of a special composition and it is claimed can not be injured by the exertion of undue pressure in screwing in the needle valve. It is made by the Ever Hot Mfg. Co.

ASKE ELECTRIC VAPORIZER

THIS vaporizer is placed between the carburetor and intake manifold, and vaporizes the gasoline spray before it enters the cylinders. It consists of four metal grids, electrically heated by the storage battery. It is

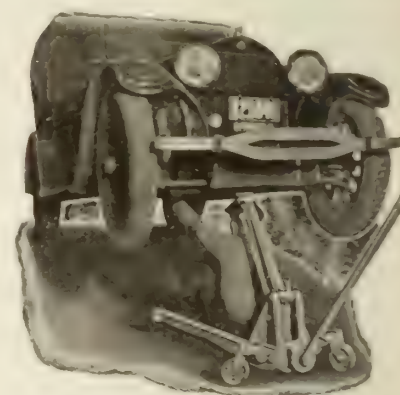


Aske Electric Vaporizer

designed for use on all automobiles, tractors, farm lighting plants, stationary motors, etc. It is made in three sizes. The makers claim it saves 70 to 82 per cent. of the battery current ordinarily used by the starting motor, and by road tests they claim it shows a saving of 20 to 30% in gasoline. Made by the Kase Electric Co.

WEAVER HI-LIFT JACK

THE Weaver Mfg. Co. recently placed on the market a new jack possessing a wide range of lift. It employs the cantilever principle of support in its construction. The saddle of the jack can be lowered to a minimum height of 7 inches and raised to a maximum of 38 inches. A removable standard provides an additional height up to 7 inches, giving an extreme elevation of 45 inches. It can be used under either front or rear axle to elevate the car sufficiently to enable the mechanic to work under the car in comfort while removing oil pan, adjusting



Weaver Hi-Lift Jack

bearings, etc. The construction of the jack gives the mechanic plenty of room and permits him to work directly under the point of support. It can also be used when replacing spring leaves, worn shackle bolts, attaching shock absorbers, etc. The handle operates a worm meshing with the gear at the base of the lifting arm. Depressing the handle to the right raises the load, to the left lowers it. The crank can be used to raise the saddle to the load. The saddle is automatically kept level, so there is no danger of the load sliding off. An attachment can be supplied for removing and transporting truck wheels. The two clamps which grip the tire are adjustable to handle tires of any size. The attachment can be attached instantly without tools. The jack is rugged in construction, being of steel and malleable iron throughout. Lifting capacity 3,000 lbs.; maximum width 40 in. The two wheels nearest handle are mounted on ball and roller bearing castors. Made by the Weaver Mfg. Co.

A perfectly round ring that seats quickly and perfectly



Wilkie Piston Rings are made from single cast, close grained, correctly proportioned metals. The very greatest care is taken in all operations so as to produce a perfectly round ring. "Wilkie" Rings are finished with a turned instead of a ground surface and consequently seat quickly and snugly. Sufficient tolerance is given at all points to prevent distortion when under heat or pressure.

"Wilkie" Rings have been proven in all types and kinds of internal combustion engines. They positively do prevent compression leaks, stop oil pumping, save gas and oil and give increase of power. You can recommend them to your most exacting customers.

"Wilkie" Price List-

Size.	Price
Up to 3 $\frac{3}{8}$ x $\frac{1}{4}$.....1.....	\$.25
Up to 3 $\frac{1}{2}$ x $\frac{1}{4}$.....1.....	.30
Up to 4 in. x $\frac{1}{4}$.....1.....	.35
Up to 4 $\frac{1}{2}$ x $\frac{1}{4}$.....1.....	.40
Up to 5 in. x $\frac{5}{16}$.....1.....	.45
Up to 5 $\frac{1}{2}$ x $\frac{3}{8}$.....1.....	.50
Up to 6 in. x $\frac{1}{2}$.....1.....	.55

Above prices are for standard sizes in width and diameter. Larger sizes quoted on.

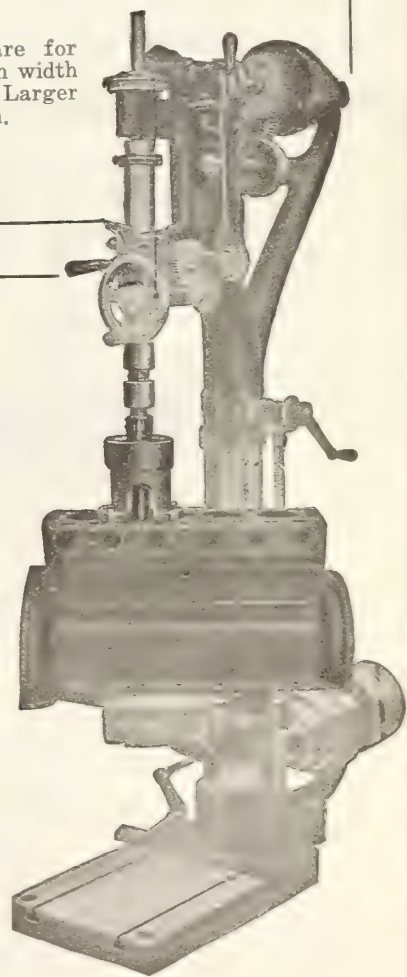
Like another experienced mechanic in your shop

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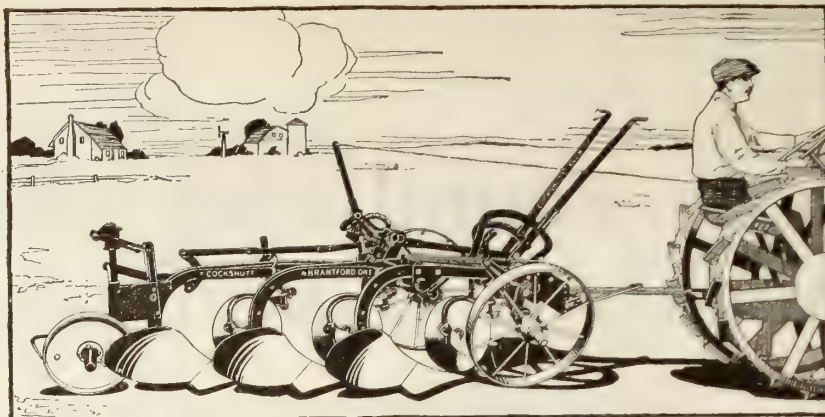
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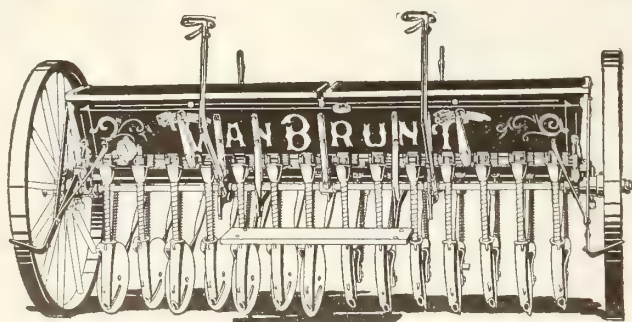
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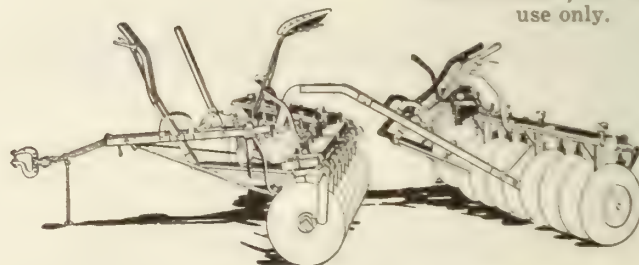
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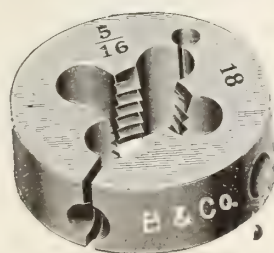
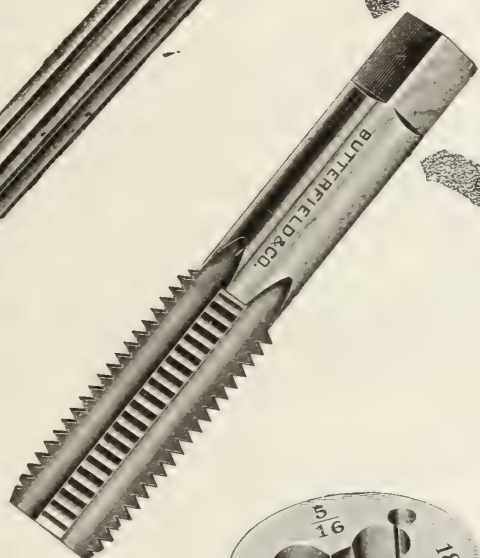
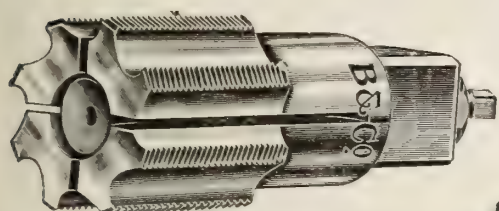
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Good Tools Make the Beaten Path

Make a better mouse-trap than your neighbor, says Emerson, and though you live in the woods the world will beat a pathway to your door. You as a dealer know during the long period of curtailed buying only products of outstanding merit have been in demand—products formed and fashioned with tools of great accuracy.

There is a two-fold reason then why every Garage Dealer and Repair shop should use and sell Butterfield tools. Butterfield taps, dies, drills, reamers and milling cutters have long-time, keen-cutting edges which mean minimum regrinding; consequently faster, better service to customers. They can be pushed harder yet last longer than most tools—a big money-saving factor to consider.

Resolve now to widen the buying path to your door by sending for full details of Butterfield tools.

BUTTERFIELD & COMPANY, ROCK ISLAND, P. Q.
TORONTO OFFICE: 220 King Street W.

Sell the line already half sold

Now's Your Chance!

The next few weeks are harvest time for the **active** dealer.

The farmer hasn't yet got busy in the fields—but he is thinking and planning about the farm machines he needs.

Go after him strong!

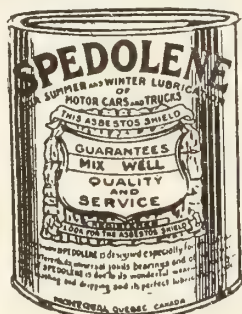
This year the farmer can no longer afford to put his money into unproved machinery. Every dollar must tell. He will buy only machinery of proved merit, and in the Lister line you have what he is looking for.

Some Lister Lines:

Melotte Cream Separator, Lister Engine, Lister Milker, Lister Grain Grinder, Lister Silos, Lister Ensilage Cutters, Etc.

Write for Literature and Agency terms.

R. A. Lister & Company
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That the lubricant you are selling to motorists is the best they can purchase; if not, is it not reasonable to expect that they will, some time, look for another make?

Motorists to-day are on the lookout for the most efficient lubricant. They realize that in the long run it is most economical, that is why

SPEDOLENE

is in constant demand by the numerous motorists who have once used it.

"Spedolene" is the only lubricant embodying Asbestos, thereby offering heat-resisting qualities that offset the most deadly enemy of lubrication. With Asbestos, there are mixed the best materials procurable—making in all the most perfect form of lubrication.

Ask your jobber about "Spedolene" or write us direct.

"Once Spedolene — Always Spedolene"

Spedolene Refining and Manufacturing Co., Ltd., Montreal

Dairy and Household Supplies

THE MILKER THAT WILL STAY

TOO MANY dairymen, manufacturers of and dealers in milking machines apparently are of the opinion that the point of greatest importance and first consideration is the saving in labor and expense effected through their use, says Dr. Cassius Way, a prominent milk sanitation specialist. From the standpoint of a sanitation as well as as the owner of a large herd, I cannot agree with this viewpoint. The most important point in the whole dairy industry is the production of a good, clean, marketable product.

What is the advantage to a dairyman of cutting down labor, only to find that his product is unsalable or at least such as will not command the highest market price? In these days of clean milk production, boards of health demand certain sanitary and bacterial standards. The large buyers are paying a premium for low bacteria count milk, and it is to the dairyman's advantage to produce what the public buyers and the health authorities want. Therefore I repeat that the most important feature to be considered is a clean, marketable product.

In order to have a good product, the milking machine must be kept clean. On many farms it is a filthy thing. Many salesmen and dealers, in order to make a sale tell their customers that it need only to be washed once a week or once a month. This is absurd. Does the housewife wash her dishes only once each week?

Milk is an ideal food for bacteria, and will pick up countless numbers in passing over dirty surfaces and through dirty utensils, and having once gained entrance to the milk, they multiply very rapidly. The one good way to ensure low-count milk is to keep the bacteria out; therefore, a clean machine is absolutely necessary. A machine that is simple, easily unassembled, constructed on sanitary lines, that can be sterilized or boiled, and easily reassembled, is much more apt to be kept in a cleanly condition than a complicated affair. The secret of success in the first point is the care exercised in carrying out this second point, and in connection with which a machine that can be easily and thoroughly cleaned is essential.

A cow's udder is a very sensitive organ. It is a gland secreting a food product that is highly susceptible to contamination. The milk cisterns, the teats and the gland itself contain some milk at all times during the period of lactation. At this time these parts are always subject to injury and infection by harsh milking either by hand or machine methods.

The parts of the teat cups that come in contact with the teats should be so constructed that they will properly fit the teats, and will operate in a gentle, pleasing manner. They should also be easily taken apart for cleaning because bacteria, causing infectious mastitis (garget, spider teats, etc.), are easily carried from cow to cow. To reduce such infection to the minimum, dip the teats in a suitable non-toxic, non-irritating disinfectant after each milking. This is a simple routine, and may offset severe loss.

A milking machine, therefore, that is uniform in operation, gentle and soothing to the cow, and easily cleaned, is conducive to healthy udders, and from this standpoint healthy milk.

Economy of operation and a less laborious and, therefore, more pleasant method of milking are important features with the dairymen these days, and judging from my experience in investigating milkers on several large farms, I am convinced that the milking machine has been perfected to a degree that ensures better milking conditions than formerly.

In summing up, I consider the four primary requirements for a successful milking machine are:

1st—One that can be used by the average dairyman in producing a satisfactory low-bacteria count to ensure a product of the highest market value.

2nd—One that can be easily cleaned.

3rd—One that will not prove injurious to the cows' udders.

4th—One that will save labor and effect economy.

BIG YEAR FOR CREAM SEPARATOR BUSINESS

WE know that a cream separator is more than a cream or labor-saving device, said the president of a large cream separator company recently. It is an important link in the chain of feed, cow, separator and cream, which enables a farmer anywhere to convert rough unmarketable feed-stuffs into one of the most nourishing and beneficial of foods known to mankind, a food which can be easily shipped long distances, finds a ready market, yields a steady cash income, and depletes the soil of less fertility than any other system of farming.

But all of us are not perfectly familiar with the use and benefits of a cream separator, as well as how it is made and functions. The important point is that a cream separator is of great use and benefit to a farmer when times are bad and when he needs it most.

Therefore, when I say that 1922 will be one of the best years we have ever had, if not the best, I am not making a fallaciously optimistic statement but one based upon sound premises. The production of butter or butter-fat at the present time is extremely profitable. Even in the best years there was seldom a time when the spread between cost of production and the selling price of a pound of butter was so great, and this comes at a time of unprecedented stagnation in other lines. Naturally farmers by the thousands, who have never given much thought to cows before, are turning to the production of butter-fat for relief. And this means many additional sales of cream separators.

Furthermore, there has been a sub-normal replacement of old and virtually wornout machines the past year which must be made up within the next year or two at most, and which must logically add from 10 to 20 per cent. to what our business would ordinarily be the present year.

GEORGE WEDLAKE, PRESIDENT COCKSHUTT PLOW CO., DIES

MAYOR George Wedlake, president and general manager of the Cockshutt Plow Co., died at his home in Brantford on March 3. His death was not unexpected, since he had been in a low condition from the time he collapsed while giving evidence in the police probe at Brantford recently, but the news came as a shock to all citizens.

Educated in the public schools of Brantford, before there was a high school, he started with A. Harris & Son as a molder, and served his apprenticeship there. As a journeyman molder he went to Cockshutt's to work when there were but twenty employees and five types of plows. He rose to be foreman, superintendent, vice-president, and assistant to the president, assistant manager, general manager, and, when Colonel Harry Cockshutt was appointed lieutenant-governor, president and general manager.

75% Gain in Business From One-Half Our Dealers

Since September 1st, when reduced prices were announced, our business has shown an increase over last year of from 50 to 100 per cent., depending upon the territory.

Our business is fine; but the surprising part is the fact that this increase is coming from practically one-half our agents. One-half our agents are working hard, and as a result are greatly increasing their separator and milker business. These are facts, not theory.

The other half of our agents are still hibernating, or are congealed in frozen credits which they are waiting for the sun of some possible 1923 prosperity to melt.

If all our agents were out working hard our business might easily be from 100 to 200 per cent. ahead of a year ago—with a corresponding increase in commissions to our agents which such business would bring.

There is the best reason in the world why our business should be good. Dairy farming was relatively never more profitable than it has been the past year and is right now.

Butter could go down to 22 cents a pound and still be more profitable than corn or oats at present prices.

During 1921 the average price of butter was 49% above the average of the five pre-war years, while corn and oats were 11% below that period; hogs were 11% above and beef cattle 7% above.

That's the reason why our business is good and why every agent who is working hard is getting his share.

To which class do you belong—the working or the hibernating?



The De Laval Milker

Both save time and eliminate drudgery twice a day, 365 days a year.

Both increase the quantity of the product.

Both improve the quality of the product.

Both are made by the De Laval Company, the oldest, largest and best-known manufacturer of its kind in the world.

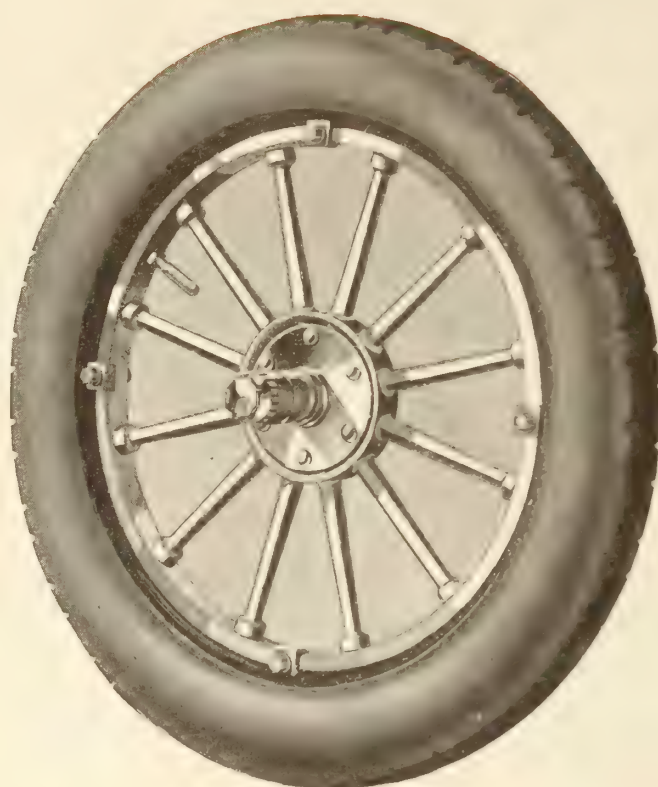


The De Laval Separator

THE DE LAVAL COMPANY, Ltd.
MONTREAL PETERBORO WINNIPEG EDMONTON VANCOUVER

**Sooner or later you will sell the
De Laval**

The Sensation of the Motor Shows



“The Wheel Indestructible”

The Kemp Metal Auto Wheel has certainly made a wonderful hit with close students of automobile and accessory construction. At Detroit and London it was the sensation of the shows. Our booths were at all times the Mecca for the keenest of manufacturers, engineers, executives and automobile owners. With one accord they pronounced the Kemp Metal Auto Wheel as being the greatest forward step in auto accessory invention of the past decade. The unanimous opinion was “the Kemp Metal Auto Wheel is in a class by itself and will prove a sensational seller.”

It is almost impossible to compute the value, to us as manufacturers and to you as dealers, of this wonderful reception tendered the Kemp Auto Wheel at these big shows. Already thousands of car owners have decided definitely to equip their cars with these indestructible wheels. Dozens of manufacturers have

made overtures towards making the Kemp Metal Auto Wheel standard equipment at their factories. The advent of the Kemp Metal Auto Wheel has taken on the nature of a vast movement for safer, more comfortable, more economical driving. The construction of this new wheel is so obviously correct that everyone is sold on it almost at first sight. The boom is on, get in on the ground floor, link up now with what promises to be the greatest seller in auto accessories that was ever produced.

Let us send you now, right at the beginning, full particulars of what the Kemp Metal Auto Wheel is, how it is made, why it is the best wheel on the market, and why it will revolutionize the whole auto wheel industry.

Send us your name and address tonight.

The Kemp Metal Auto Wheel Co., Limited
122 Richmond Street West, Toronto

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BEAVER

Have you overlooked
The opportunity of
Selling and Servicing
Canada's Best Known
Truck?

Wire today for particulars

BEAVER TRUCK CORPORATION, LIMITED
HAMILTON CANADA

5 Wrenches 120 Grips

Now is the time to buy BILLMONT WRENCHES

Now, in the springtime, when everything from the lawn-mower to the automobile needs screws replaced, nuts tightened—and "inside organs" generally overhauled—is the time you feel you need "a dozen pairs" of hands to reach all those "hard-to-get-at" spots.

The Billmont Small Kit will prove invaluable to you. In five tools—with twenty-four interchangeable sockets—it gives you the equivalent of 120 wrenches and one interchangeable screw driver.

Buy a Billmont Small Kit now. Whether you are an automobile owner, a garage man, a tractor owner—or simply do the odd jobs round the house after business hours—you need a Billmont Small Kit—and now is the time to buy it.

All hardware merchants and automobile accessories dealers carry Billmont Wrenches. Their compactness, their practicability and time and labor-saving ability will save you money.

The Billmont Small Kit consists of the following tools: One Speeder, One Rim Brace, One Offset, One Long T, One Short T, Box of Twenty-four or Ten Interchangeable Sockets, One Interchangeable Screw Driver. The complete set is packed in a strong canvas bag.

BILLMONT

WRENCHES

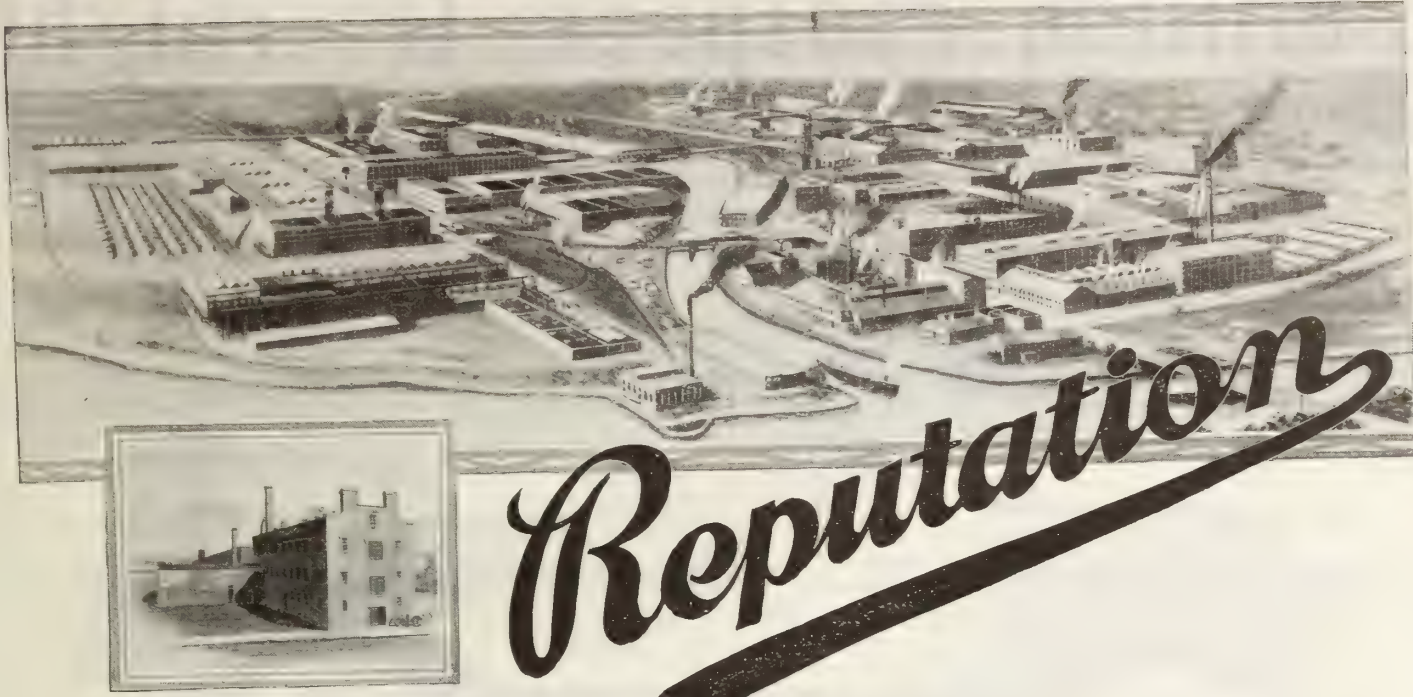
with Interchangeable Sockets

are obtainable singly, as well as in our specially made kits.
Order through your jobber.

Russell Gear & Machine Company, Limited
1209 King Street, West,

TORONTO Ontario
Makers of the Famous Billmont No. 500 Mechanics Kit





From a single small shop in 1842, to a mammoth plant of 80 acres floor space in 1922. This is the measure of our 80 years of growth.

How do you dealers in power farming machinery measure the value of a good name?

Go back to your first year in business and recall how your customers had to be won over to believe in your judgment of machinery; in the surety of your remaining in business, and finally to believe in you as a good dealer worthy of their patronage.

One of the biggest factors in the building of *your business* and the protection of your good name is the reputation of the product you sell.

Eighty years ago the founders of this Company started to build threshing machines in a small shop. They were inspired with the ideal of building better machines than farmers in those days could obtain elsewhere.

From this small beginning the J. I. Case Threshing Machine Company has grown to be the largest manufacturer of threshing machines in the world. Its products are known for their high standard of excellence in practically every farming community where modern machinery is used.

Through all these years of rich and varied experience the ideals to build well and serve well have never changed. The steady progress we have made has served to increase our faith in the idea that quality should be the first consideration in a product, and that fairness and honesty should characterize every transaction.

This is our reputation—a reputation we believe can be made to serve you in your business.

J. I. CASE THRESHING MACHINE COMPANY

Dept. S216

Racine

Wisconsin

Factory Branches: Alberta—Calgary, Edmonton. Manitoba—Winnipeg, Brandon. Saskatchewan—Regina, Saskatoon. Ontario—Toronto.

NOTE: We want the public to know that our plows and harrows are NOT the Case plows and harrows made by the J. I. Case Plow Works Co.



CASE
POWER FARMING
MACHINERY



A Million Prospects Overnight

Our recently announced tractor and twine price reductions, coupled with the free plow offer, good up to May 1st., has uncovered for our McCormick-Deering Dealers a vast number of live prospects. These can be closed at once if you can get to them rapidly.

*See the Blockman
or telephone your
Branch House.*

Painted Red



Dealer's International Speed Truck

Will help you reach these newly discovered tractor, twine and machine prospects in record time. This is an opportunity to secure a high-class hauling and delivery unit at an exceptionally low price. The offer is limited strictly to our dealers and closes in the near future.

This year tractors and other farm equipment are not going to be sold to any extent in the dealer's store. Right out on the farm is where most deals will be closed and every McCormick-Deering Dealer should have one of these "Red Service Trucks" to help him get the business.

Attractively painted in red and lettered with the dealer's name and business, it is an outfit that awakens the buying spirit and stamps the dealer as a farm machine headquarters in his community.

Time is an element and the Red Truck will enable the dealer to see more customers and do more business during the Spring rush. Samples of engines, cream separators and other farm machines can be taken to the farm door in this Red Truck and demonstrated. It's just like taking your sample room to the farmer. Never go out empty. Go out loaded every working day. Don't forget this truck is especially adapted to carrying twine. Some dealers take out twine and make twine sales pay the canvassing expense.

The Harvester Company fully realizes that the dealer is the backbone of sales and service in the implement business. In 1921 the dealer's problems were many, varied and in some cases almost insurmountable. In the last 30 days we have had many indications that the tide has turned—that there is acute need for new farm equipment in almost all sections. The dealers who have made an earnest effort to get out on the farms and canvass have been rewarded. The Company is doing everything possible to assist its dealers, and to bring conditions back to normal.

INTERNATIONAL HARVESTER COMPANY OF CANADA LTD.

HAMILTON CANADA

WESTERN BRANCHES — BRANDON, WINNIPEG, MAN., CALGARY, EDMONTON, LETHBRIDGE, ALTA.,
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CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

Volume 4

TORONTO, APRIL, 1922

Number 4

Labor Saving Equipment—Larger Profits

A Working Day in the Repair Shop Represents Just So Many Hours and No Dealer Can Stretch Any Part of This Time to Cover a Certain Amount of Work. With Proper Tools He Can Get More Work From His Men in a Given Amount of Time Without Working Them Any Longer

WHAT IS the minimum equipment on which the present day automotive repair shop can operate to give prompt and efficient service at reasonable cost, and at the same time pay a profit to the dealer? The answer to this question will depend largely on the dealer's location, the car population in his district, and the kind of cars used. What would be a minimum in a city with a population of say, one hundred thousand, would, generally speaking, be near the maximum for town of one thousand. But irrespective of location there is a minimum below which no shop should operate if real service is the ideal.

The automobile, truck and tractor owner is being rapidly educated to the fact that if he is going to get any pleasure or service out of his machine he must take proper care of it. And when anything goes wrong, and it is necessary to seek the aid of the service station, he is going to see to it that the dealer has the mechanical equipment adequate to make the proper repairs.

Repairs Must Be Done More Scientifically

The time is approaching when repairs must be done more scientifically. The dealer with the "hammer, chisel, hack-saw, screw driver, etc." kind of equipment will find that owners will pass him up, and will take their repairs to the shop with the proper equipment.

Manufacturers of automobiles, trucks, and tractors are insisting more and more that their service stations install modern labor saving tools, so that it will soon be impossible for the poorly equipped repair shop to get recognition. As one manufacturer said recently: "It is not logical that a manufacturer should have an investment of millions of dollars in a plant equipped with the very best of labor saving devices to produce an automobile or a tractor, and to have the same automobile or tractor repaired by a man with only a hammer and screwdriver to work with. This condition has been brought to the attention of the manufacturers and they know that their owners cannot be satisfied unless there are repairshops to which they can take the machines and get efficient service."

It is not suggested that every service station in the country be loaded up with a lot of expensive equipment. It is up to every dealer to analyse his business both as to trade he is getting and trade he could get if he was prepared to handle it.

Good Tools Pay Big Profits

But there is a list of tools, which every repair shop should have; this list could quite reasonably be called the irreducible minimum.

Of course in presenting any list of tools there will always be dealers who say they "can't afford it." Do these dealers ever stop to think what it costs them each year to operate without adequate equipment? Operating with nothing but hand tools

under present conditions will often mean that the dealer is either losing money on certain jobs, or that he is charging more than the owner thinks the job is worth. Such conditions will eventually be the undoing of the dealer.

If a car owner took his car to a repair shop to have a rear wheel taken off and in the absence of a wheel puller the mechanic proceeded to drive the wheel off with a hammer, the owner is not likely to form a very favorable opinion of that repair shop's

EFFICIENCY IN THE SHOP

We should have efficiency in our repair shops. It is of prime importance. It is not enough that a dealer be able to just "fix" a car so that it will run—he should possess the knowledge and facilities for turning out work that would pass the most rigid inspection. He should have equipment proportionable to his service requirements. He should have special tools for those operations peculiar to the particular car that he represents. Stationary equipment should be located with a view to increased efficiency and the hand tools should be kept in special tool racks where they may be readily located. The car owner must not be penalized for inexcusable lack of efficiency.

NORVAL A. HAWKINS,
General Motors Corp.

efficiency, especially if he knows there are tools on the market for pulling wheels off, instead of driving them off.

The right kind of equipment is an investment and an investment that pays big dividends. Therefore no dealer should feel that he can't afford it.

A list of tools and equipment which we think every repair shop should have, over and above the regular hand tools, is as follows:

- 1 A lathe.
- 2 Drill press.
- 3 Grinder.
- 4 Portable crane or overhead track.
- 5 A set of adjustable wrenches.
- 6 Two or three good vises.
- 7 Well constructed bench.
- 8 A set of adjustable reamers and solid reamers.
- 9 Portable air compressor.
- 10 Grease gun.
- 11 Wheel and gear pullers and suitable jacks.

With this equipment the repair shop can handle practically any job, and by advertising it in his community, the dealer before long will discover that instead of a liability every piece of equipment will have proven an asset.

A solution of the tools in this list as to size and capacity will depend on individual requirements.

In the matter of the lathe, one with a swing of between 12 and 16 inches will be found adequate for the average repair shop.

In choosing the emery wheel there are three things in particular that are important if the best results are to be obtained. The wheel should be of the proper size and grade—grade meaning the fineness or coarseness of the grit—for the work; it should be run at the proper speed; and it should be held in place properly. As to grit and speed, wheel manufacturers all give abundant and detailed information, and this should be followed closely. Elsewhere in this issue we give full information on grinders and how to mount them, so it is sufficient merely to point out here the importance of the proper selection and mounting of wheels.

The dealer should try to have one end of the grinder spindle equipped with a disc so that he can do fine surface grinding.

A drill press or a power driven drill is an absolute necessity in every repair shop. In a small shop one drill press of moderate size is usually quite sufficient; for occasional jobs too large or too small, can be done very well on the lathe. The drill press should be kept in good shape. A little adjustment now and then saves a lot of wear and tear, a lot of trouble with untrue holes, a lot of wasted time, and a good deal on the total life of usefulness of the machine. A press that is in poor shape can often be made serviceable by renewing bushings, truing up spindles, putting up new stop-collars, turning up the table and lining up generally.

We need not enlarge further on this list of equipment, the dealer will find that his selection of reamers, jacks, drills, hoists, etc., will depend on the kind of work he is called upon to perform.

Special Tools

Over and above the regular shop equipment there are a number of special tools on the market which the dealer can add to his stock from time to time—these special tools are designed to speed up work, and ensure accuracy even with mediocre mechanics. Under this class of equipment come devices like aligning jigs, straightening presses, piston vises, valve reseating tools, axle stands, etc.

The dealer will find as he builds up his equipment, that he is at the same time increasing his capacity for service which in turn means increasing his business and swelling his profits.

Owners will seek the service station where the equipment is and where their wants are attended to intelligently and efficiently. As one writer has it: "Shop mechanics represent just so many hours of time a day and no dealer can stretch any part of this time to cover a certain amount of work. He can, with proper tools, get more work from his men in a given amount of time without working them any harder."

Where Proper Equipment Is Helping to Sell New Cars

A Good Service Station Equipped to Handle Any Repair Job in a Speedy and Satisfactory Manner is One of the Best New Car Sellers a Dealer Can Have. This Story Tells How a Toronto Dealer Is Cashing In on His Equipment and Boosting Sales

THE automotive business during the last twenty-five years has grown from nothing into one of the greatest of modern industries, the introduction of the automobile and the motor truck wrought a revolution in travel and transportation methods almost before our very eyes.

Until within the last eighteen months, cars practically sold themselves. The salesman had no real difficulty to encounter, especially during the last two years of the war and up to the summer of 1920. There were buyers everywhere, lots of them. It was easy

a repair department which is one of the best equipped in Ontario.

"It is our policy to give the best service possible," said W. C. Warburton, "and to that end we have installed some of the best modern equipment, capable of handling any kind of a job. We feel that service is closely related to sales and to give the most efficient service a dealer must have complete equipment.

"He must also carry an adequate and efficient repair staff. We employ about sixteen mechanics.

About five hundred new cars were sold by the Warburton Company last year, and an average of two hundred cars repaired weekly. When one considers those two hundred weekly repair jobs, and every job put out to the customer's satisfaction, it is not hard to see where sales are benefited by service.

Service Department Layout

The Warburton Company's repair department is laid out with a view to speeding up operations. There are no twists or turns to make the movement of cars awkward or to obstruct the light. It is rectangular in form, 115 x 60, is located on the third storey and connected to the ground floor by a 3 ton electric hoist. Along the south end of the repair room—the garage looks to the south—are arranged the main work benches where all motor and transmission work is done. This end is composed entirely of glass. The main work benches are flooded with daylight. Windows on all sides of the building and numerous skylights reflecting on white walls and supporting pillars supply plenty of daylight to work on every job.

Principal Equipment

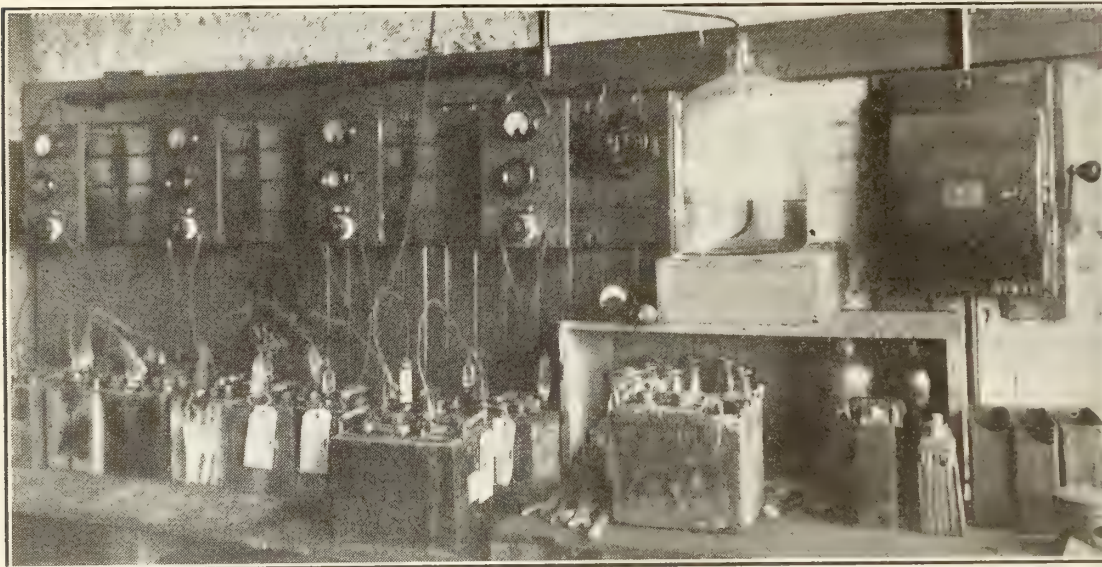
A Louden overhead track encircles the entire repair room and is in constant use in every part of the shop. Several sets of chain blocks form part of the overhead track system and go a long way to speed up the work.

The principal machines in the repair room are as follows:

An 18 inch South Bend lathe with a 6 ft. bed, back geared and equipped for screw cutting. This is one of the most useful machines in the shop and is adapted to many uses.

American Universal bearing burning-in and testing machine. This machine is in constant commission either burning-in bearings or testing motors after they have been overhauled. It is driven by a belt from a General Electric 30 h. p. motor.

The Cadillac vertical boring machine for reboring cylinder blocks can also be used as a drilling machine. Different firms adopt different methods in handling repair work. In the matter of reboring or regrinding cylinder blocks the Warburton Company who specialize in Ford cars have found from their standpoint that reboring is more advantageous. In all cases of badly scored or warped cylinders they recommend rebor-



An important department is the battery recharging. One man is kept busy all the time and charges from 45 to 50 batteries. An HB generator with capacity of thirty-six 6-volt batteries is used.

to sell, and for that reason hundreds of dealers sprung up over night in every part of the country.

Any kind of a dealer was good enough a few years ago; he was sure to make sales and reasonably certain of profitable returns for money and time invested. In those days he did not trouble much about service, and save a few hand tools had nothing with which to make repairs.

Good business management was conspicuous by its absence, and as for a service-to-customers-policy there was no such thing.

A remarkable change has taken place. The halcyon days of easy selling and slipshod service have gone for good. Cars have now to be sold in a keen competitive market and a discerning public is demanding a service of a high order. The dealer who had been conducting his business without a proper system when the slump in the automobile industry took place a little over a year ago, found himself in a very serious predicament, and many of his kind were forced out of business.

The same holds true for those operating without proper service equipment.

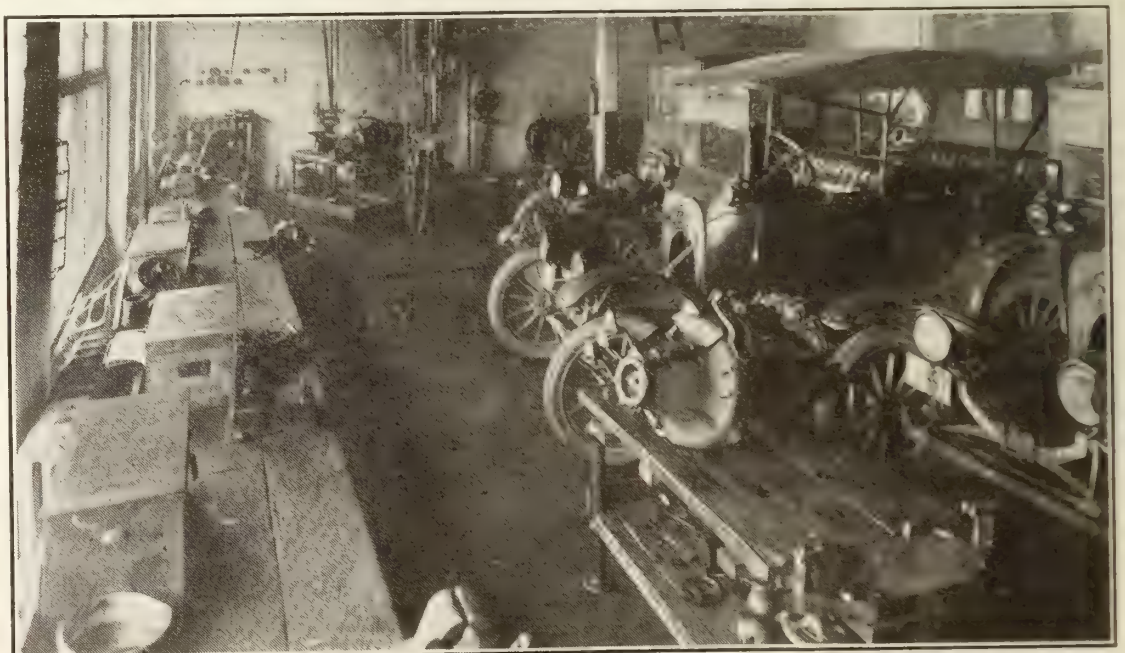
Sales and Service Go Hand in Hand

Selling cars to-day is synonymous with servicing cars. Sales and service go hand in hand. Generally speaking without a satisfactory service department the average garage business could not exist. It may be possible in certain large cities for one or two exclusive sales organizations to operate profitably, but speaking as a whole, service and sales must go together.

A good service department well equipped to handle any kind of a job in a speedy and satisfactory manner is one of the best new car sellers any business can have.

W. C. Warburton & Co., Ford dealers of Toronto, have long realized this, and have been cashing in on

Sometimes when a little slack spell comes, one or two of our men may have very little to do, but we believe it is in the best interests of our customers and ourselves to keep our staff up to strength; we never can tell when some large rush orders may come in necessitating the use of our full staff working at high speed to get them out in time, and in proper shape. We must give good service, our business is built on service, and service only will maintain it."



This picture shows part of the main bench of the Warburton repair room. All motor and transmission work is done here. Cleanliness and orderliness are outstanding features.



This is an interesting corner in the W. C. Warburton company's repair room. Notice how well everything is arranged and the abundance of light provided.

ing and as two hundred or more cars pass through their hands each week, the boring machine is kept pretty busy.

A large air compressor and tank in the repair shop supplies air to the radiator testing machine and blow torches. As radiator maintenance like most other repair jobs in the automobile shop is an all-seasons task, the Warburton Company have seen fit to employ a man steadily on this work. He is kept busy all the time and has the advantage of a very full equipment, including a special bench fitted with gas furnace, soldering outfit, torches, radiator stand, water tank and air gauge. Other equipment in the repair shop proper includes:

- A 20 ton Weaver press.
- Crank shaft aligning jig.
- Rebabbiting jigs for connecting rods and cylinder blocks.
- Weston ignition coil tester.
- Motor stands.
- Starting motor and generator test stand.
- Connecting rod aligning jig.
- Wilson jig for reaming transmission drums.
- Running in stand.

Requisitions Necessary for Special Tools

The smaller tools such as special speed wrenches, reamers, drills, saws, taps, arbors, etc., are kept in the tool room and only given out on a requisition.

A Prest-o-Lite oxy-acetylene welding outfit is an important part of the equipment. This is a portable outfit and a requisition is necessary before a mechanic can use it.

A section of the repair shop, 25 x 15, is cut off from the main room for the service foreman's office, tool and repair stock room, and battery charging.

The battery service equipment consists of an H. B. generator with a capacity of thirty-six 6-volt bat-

teries. One man is employed in this department all the time, and charges from 45 to 50 batteries a week. Other electrical repair equipment in this department consists of a generator testing machine, a Fairbanks O. K. Ammeter tester or growler and numerous small tools.

Machines Pay Their Own Way

Every machine in the Warburton Company's garage has to pay its own way. A close check is kept of every operation performed on all machines so that at the end of every year they can tell just what a certain machine has made for them. After the 1921 business had been fully checked up, the books showed that practically every machine in the shop had made a profit for the firm and justified its incorporation in the scheme of things.

How Repairs Are Handled

Over and above the regular staff in the repair shop, four men are employed on the ground floor who test all cars as they come in. It is their job to go over the cars thoroughly to see what repairs are required and to discuss the trouble freely with the owner. Where the work to be done is clearly defined a flat rate price is given before the car leaves the ground floor. This price applies only to labor required to complete the job, all parts used are charged extra.

After the inspector completes his notations he makes out a shop order and has this signed by the customer. The order is in triplicate. The first copy is white, the second yellow and the third is a stiff card which goes with the car to the repair shop foreman.

The job order carries full information about the work to be performed, and is the instructions for the whole plant. The customer's name, address, telephone number, and license number, together with the

date the job was received, are entered at the top of the order. Immediately underneath is space for instructions. This forms the main part of the card and carries details of every operation authorized by the customer.

At the left side of the job order is a narrow perforated slip running the full length of the main order. This is in two sections. The top part being the progress and repairs record containing the following information; license number, repair order number, date received, customer's name, address, telephone number, date promised, date finished, and amount. The bottom part is the customer's receipt. The back of this strip forms the car release, giving authority to man in charge to hand over the car to the customer.

On the reverse side of the main job order all material and labor charges are reported. This section reads at the top as follows; requisition number, quantity, part number, material, amount, time sheet number, employee's number, and number of hours.

All three copies of the job number are identical except that the first sheet which is the white copy and goes to the customer carries the car release on the reverse side. The reverse side of the white copy with the full record of material and labor also forms the invoice to the customer.

All parts required are drawn from the stock room by a requisition signed by the foreman. The requisitions after being filled out go at once to the office. Time slips are stamped in and out on each operation and also go to the office.

When a job is finished it is sent down to the ground floor, and after being tested by driving it around several blocks is ready for the owner. The car will not be handed over until a release slip is made out and signed by the manager, signifying that the customer has either paid cash or had the amount charged to his account and signed by him.

Are You Neglecting the Tire Department?

By C. E. NORRIS
Canada Vulcanizer Company

A FEW years ago, in a small city in Ontario, a couple of dozen men broadly classified as automobile dealers, held a grouch festival. A branch of the dealers' association had been formed and this was the gathering.

The owner of the largest garage in town was on his feet and remarked—"Yes there's something wrong with the tire business. Three years ago I sold twelve thousand dollars worth of tires, this year we won't sell twelve hundred worth." Another garage man added his testimony; still another said "ditto." "Well," said a fourth—"Who's selling all the good worn tires anyhow?"

A visiting dealer from an adjoining smaller town stood up—"Don't you boys think you better wipe off your spec's?" he said, "it seems to me there are a few boys that aren't doing much talking, and as far as I am concerned I had the same grouch some time ago. I found my customers buying their tires—in town—or from mail order houses, or most anywhere else but me—I sized it up and decided to learn more

about tires, and to find out the why and wherefore. I analysed the sale of a tire—and now I sell tires—yes, a lot of them."

The majority of garage men will grind valves, adjust carburetors, or anything else on a car, but attend to the parts that cause more trouble than anything else, namely the tires. There is a reason for this in the large cities, the close competition of specialized tire men and the highly classified trade conditions prompt the regular garage man to leave the bulk of the tire selling and repairing to these specialists, but in the small towns and villages, where there are no specialists, the garage man is not taking advantage of the opportunities offered by selling and repairing tires.

One of the reasons put forward just now is that tires have dropped in price so much that owners would

sooner buy a new one than have the old one repaired. Tires have dropped in price but the percentage of profit remains the same and owners are just as frugal as always and persist in having their tires repaired until they will give no more service.

Vulcanizing pays and pays handsomely. It brings in real money and enlarges your sphere of service. The equipment necessary to take care of the vulcanizing requirements of the average town garage is not extensive or expensive. A small vulcanizing machine and kit of tools suitable for garages and small service stations can be bought in Canada for less than \$200. One casing repair and a couple of tube repairs per day, or one extra tire sold, would show an average of \$3 a day, or \$930 a year, returning the equipment cost and several hundred per cent. profit on the investment—after allowing a generous margin for repair material.

A garage equipment to handle all phases of repair work, can keep closer contact with the trade, give better and complete service and show genuine profits.

Urgent Need for Better Business Methods

Power Farming and Automotive Dealers Have Been Paying Too Little Attention to System In Their Merchandising. This Emphasizes the Importance of Discounts, Capital Turnover and Buying

By O. R. FROST

THE URGENT need for sound merchandising is becoming more and more apparent each succeeding day. So long as the sledding was good, sound merchandising methods were not absolutely necessary. Reasonable profits and a good volume could be obtained by "just keeping store." That is always the case in a seller's market. But now that the buyer is in the saddle he will not hesitate to exercise the privilege of choosing at his leisure from what the market affords. That old fear of a possible shortage of goods no longer drives him to quick decisions to buy. He does not make known his wants until after they have actually matured, and then he takes the liberty of "shopping around" and driving the sharpest bargain within his power. It can safely be said that for the next several years most of the goods that go out onto the farms will follow an earnest effort to sell rather than an uncurbed desire to buy.

Such a reversal of trade conditions will try the mettle of every dealer. Methods that were successful in the seller's market cannot be expected to win trade now, and those who for the first time became dealers under war-time conditions and accepted those conditions as permanent will be the first to become disheartened. But the old timers who knew what it was to fight for business when conditions really were normal are now plugging away with a zeal and determination that to the more recent recruits may seem illogical. But it isn't.

Wise Dealer Is Out in Territory All the Time

The old timer regarded the seller's market as a sort of holiday or vacation, and when it was over he rolled up his sleeves and stepped into the collar again. When you call at his store these days you are told that he is out in the country, and if you follow his trail you'll find him cheerfully chatting with his customers wherever he meets them and diplomatically learning their equipment needs. You'll observe, too, that not infrequently he locates a promising prospect, and when he does he goes after the order just as if there never had been a war. He is just as enthusiastic about the value of his goods as he ever was. He is careful to avoid arguments with those precious customers of his, and he doesn't spend much time talking politics. He preaches nothing but the doctrine of lower production costs through the substitution of mechanical power equipment for horse and hand labor. He may feel a little down in the mouth at times, but when he is in the presence of customers you wouldn't know unless he told you so.

And if you were to watch him at his store you would find him making strenuous efforts to take advantage of every cash discount allowed on his invoices. He knows that a 5 per cent cash discount is equivalent to a similar reduction in the cost of goods to him. He realizes that it is the surest way to secure an increased net profit in these times when even a slight increase may mean the difference between success and failure. Since the profit margin can no longer be widened by arbitrarily increasing the price it must be done by practising better business methods. Taking advantage of the cash discount privilege is one of them.

Capital Turnover Receiving Too Little Attention

And capital turnover is another. It is unfortunate that capital turnover has in general received so little attention by dealers. We are accustomed to figuring the farmer's capital return as a certain percentage on his investment, using as a basis a one-year period. It is natural that we do so since the average farmer's investment is tied up and the cash he takes in is a gross income on an investment that does not turn. This, however, is not the case with the dealer. The dealer buys and sells goods. As fast as the goods are sold and paid for the money is ready to be reinvested and to earn another profit. The oftener it can be turned in this way the greater will be the net annual profit. The dealer who does a \$10,000 business annually for each \$5,000 invested gets double the return of the dealer who turns his capital once

each year. And if he can increase that turnover to three times each year he can do either of two things: reduce his borrowings proportionately, or if he has his own capital he can release a part of it for outside investment. Most dealers can increase their capital turnover by one or more of the following methods; more careful buying to avoid tying up capital in carry-overs, or slow moving stock, by very conservative purchases of slow moving lines, by carefully watching settlements to see that cash is on hand to meet invoices before the expiration of cash discount dates, and by aggressive though conservative selling methods.

This question of turnover is one that every dealer can well afford to devote long hours of serious study in solving, for on it hinges most of the ills that beset the retailer in any line. Especially is this true just now when credit conditions are somewhat abnormal, and the cold cash comes into the till more slowly than usual. There is a tremendous temptation toward over-extension of credit when goods move slowly, while bills keep coming in and overhead stays high, but it is better to obtain rapid turnover by some method other than doubtful credit risks. It will not be as difficult during 1922 to find farmers who are financially able to make their normal purchase as it was in 1921. It would therefore seem far better practice to comb the territory intensively by persistent advertising and personal canvassing in order to secure the maximum amount of business on a cash or nearly cash basis. And if credit must be extended, why not eliminate the open book account and insist on bankable security? To tie up both your profits and capital in non-liquid assets, and the open book account is that kind, forms an uncomfortable burden at any time. Under existing conditions it could easily become the fable's "straw that broke the camel's back."

In coming years careful buying will be an outstanding factor in successful retailing. When markets

were rising and goods were scarce it sometimes required an effort to over-buy, and even when over-buying did occur it was not a serious matter, since the increasing value of the merchandise partially, and in some cases wholly, compensated for the carry-over cost and shop wear depreciation. Now that the price level is receding and merchandise is plentiful, over-buying is tinctured with danger. On the other hand, no dealer should overlook the selling advantages and larger net profit made possible by quantity discounts. The little leaks are counting now and no profit outlet is too small to be overlooked, and the dealer who knows his territory thoroughly, who has accurately measured the capabilities of his own organization, and who has carefully laid his plans need have no hesitancy in reaping the full rewards of quantity discounts to the limit of his conservatively estimated volume.

Buying Principal Factor in Retailing

Peacemeal buying is seldom, if ever, desirable. It certainly is not desirable now. During this year and for several years to come farmers may be expected to do more and more of their buying at or near the peak of the seasons, and the dealer who attempts the policy of "ordering as sold" may have an empty warehouse at the close of the year, but it will be obtained at a sacrifice of much profitable business. It were a much better policy to make a careful analysis of trade possibilities, buy accordingly, get the goods in, set up a good display, and go after the business for what it really is worth. The very presence of the goods at the store will serve a double purpose; it will have a strong tendency to inspire the buying spirit in customers, and it will prove an effective stimulant to the energy and enthusiasm back of the sales effort. To the man who needs a new machine there is nothing that so quickly loosens his grip on the pocketbook as the sight of that very machine before his own eyes, all shined up and ready for his use. Likewise, there is nothing that so spurs the salesman on as having on hand a machine that should be translated into salary, commission, or liquid capital.

Vancouver's Motor Show



An interesting view of the Vancouver Motor Show.

A GREAT DEAL of interest has been created and maintained by the big automobile show that the Vancouver Auto Dealers Association staged in the Vancouver arena rink March 23, 24 and 25.

Everything up to the minute in motordom was effectively displayed and the whole exhibition was a liberal education to those who now own autos and

those who shortly will be driving their own cars.

One feature of the Friday show was the Fashion Review; advance showings of the styles which will be seen on Easter Sunday were supplied by the leading costumiers in the city and, as one of the local reporters said it, "The living models are, by the way, hand-picked buds of much pulchritude."

"Too Much Is Expected of the Dealer"

So Says This Farm Machinery Salesman in a Letter to Motor and Tractor. "What We Want Is More Uniform Service and An Understanding of What Is To Go With the Deal, and That After the Bargain Is Fulfilled Further Service Must Be Paid For."

(The editor will be glad to have the views of other dealer readers on this important topic of service and responsibility)

IT IS interesting to read in your February issue of Motor and Tractor the varied opinions of manufacturers and dealers as to what constitutes service, and how much of it should be given with machinery. You invite criticism, so I take this opportunity of putting in some opinions of a salesman representing a thresher company.

There are three parties in the deal, viz.—manufacturer, dealer, customer. Practically every item in regard to each deal is thoroughly understood except the amount of service to be given. In the province of Saskatchewan we have a "Farm Implement Act," which compels us to use a different order form in selling, "new large implements," "secondhand implements," "small machinery." The law in regard to the first mentioned form known as Form "A" provides a clause embodied in the order, viz.—"That the vendor will send a competent man to start said engine and instruct purchaser in its operation."

Therefore the manufacturer is compelled to service the tractor until delivery is satisfactorily made. It is practically impossible for the manufacturer to hire or furnish sufficient men to make all deliveries in the rush season, so that where a dealer is competent or has a competent man in his employ it often happens that he is left to put up this service and does not get any more commission for it than the man, who, because of his incompetency, requires the manufacturer's employee to make every delivery.

Too Much Expected of Dealer

Too much is expected of the dealer. He is to be an authority on all branches of farming, able and ready at all times to make adjustments to all kinds of machinery, or hire help to do it for him. It is not so hard for a dealer to understand the machinery he sells if he has but one line, but when we think of ten or twenty companies being represented in a small town where there are from two to four dealers, we realize that it often happens the dealer has half a dozen agencies and therefore is not usually expert in making adjustments on all the different machines.

In spite of all effort on the manufacturer's part machinery shipped on flat cars often does not reach its destination in good shape, because of the many abuses to which it is subject en route. If misadjusted or incomplete the manufacturer should be responsible to the dealer.

Need For Better Understanding

This subject of service is well worth airing and giving wide publicity, for by advertising the importance of a better understanding between manufacturers, dealers and customers, we might get a more definite plan of service; one that will be recognized as a part of the bargain, part of the sale, and having a limit so that when a certain service has been given that was agreed on belonged to the deal, the customer commences to pay separately for further service.

We read of full service, and we read that there is no such thing. I believe it is intended that service be paid for indirectly. And the customer pays it. But there are hundreds of hours of free service given by some manufacturers and by some dealers, especially by the latter for the dealer is the goat for both the manufacturer and customer.

What we want is more uniform service and an understanding of what is to go with the deal and that after the bargain is fulfilled further service must be paid for. Under the present method the manufacturers and dealers in a great many instances are too anxious to deliver as much goods as possible without committing themselves more than they can possibly help as to service. In other words they avoid as much as possible any expense in connection with each deal after delivery, all because of no definite understanding between the parties entering into the contract, company, dealers, customers.

Too much is taken for granted. The dealer does not give enough consideration oftentimes to the various

contracts of different manufacturers, and sometimes because of this he is actually imposed upon. On the other hand there are times when the manufacturer is trying to help the dealer and he does not take advantage of it.

Instruction Schools Would Help

In the case of tractor schools they should receive far more recognition by dealers and farmers. The dealer's contract to the manufacturer should provide that he agrees to come or send a representative to the school each year, then the dealer would be in position to live up to his part of the bargain in service giving. Instruction books should be given more value as they usually contain sufficient information to allow the man who masters them to master the

tractor or machine to which it pertains. These should be available to the dealer and in turn to the customer for a price equal to their cost, so that instead of carelessly losing them the operator would realize that in them he had an investment. Of course, one should go gratis with each machine.

It is the manufacturer's duty to train or hire as road men only those who have a thorough knowledge of machinery, so that they are capable of making adjustments and giving instruction to dealers and customers. Nothing is more disappointing to a customer than to realize that the man who sold him his machine is only a catalog man and not able to give any instruction as to its proper operation or adjustment.

Yours truly

ART. WOOD.

Keeping Old Cars Running More Important Than Selling New Cars

By General Motors Official

ANTICIPATION of repair parts requirements and the distribution of parts on a wholesale basis are the forerunners of an efficient unit package system and we've all got to come to it. We have no right to penalize our customers for our own inefficiencies incident to the repeated physical handling of our repair parts. We have not discharged our obligations to the car owner. We have not met responsibility until we get these parts to him at the right price. Although the war is over and the price of materials and labor have settled down to a more or less stable level, we are still asking the owner to pay us exorbitant prices for parts necessary to the maintenance of his car.

The completed motor vehicle is designed and built to meet a certain market price, but repair parts for this same vehicle are manufactured on a cost plus basis and any loose ends of operating costs are thrown into the bargain.

Most of us are still adhering to the unbusiness-like war time practice of omitting our repair part prices from our catalogue. It surprises me to learn that a number of companies have even discontinued the practice of supplying owners with parts catalogues. We, of the automobile fraternity, do not hesitate to spend \$7,500 in the Big Weekly to call our product to the attention of the buyer and if Mr. Buyer answers the ad, we send him 18 form letters, six folders, a dollar and a half catalogue and a liveried chauffeur to take him for a ride in the park—then after he buys the car we refuse point blank to give him a parts catalogue and some of us even go so far as to attempt to charge him for it.

The present day dealer, in striking contrast—submerged in a multiplicity of methods conspicuously free from any and all interchangeability of parts—is in the predicament of having entirely too many parts catalogues. He finds it necessary to refer to a "5-foot shelf" of voluminous literature to ferret out the various serial numbers, parts numbers, pattern numbers, model numbers, car numbers, motor numbers, code designations, historical data references, alphabetical prefixes, differential discounts and war tax schedules, before he becomes a party to the secret of just how much too much he is going to have to pay for the blame thing! And even this isn't the worst of it for the dealer immediately goes on one better and begins to tack on extra charges covering freight, express telegrams, handling, overhead and wear and tear of his nervous system.

General Motors has just inaugurated a policy that provides for service parts requirements being given precedence over production requirements, first, last and always—irrespective of the new car orders on file—and without consideration for any temporary financial loss. We have arrived at the very sound conclusion that keeping the old cars running is of

far greater and more lasting importance than the matter of getting the new cars sold. The old car owners must be given first consideration if we expect to get new car owners. The repair parts phase of the industry must be conducted for profits but these profits must come through greater efficiencies all along the line rather than by the maintenance of prohibitive repair parts prices. Service must no longer be confused with free repair work. The owner wants cheaper transportation rather than cheaper automobiles or "free" repair work.

Service doesn't mean giving goods away but it does mean seeing to it that the ultimate consumer gets 100 cents' worth of value for every dollar that he spends. As applied specifically to the motor vehicle industry, service may be defined as a summation of those constructive efforts on the part of the manufacturer and the dealer that enables the owner to get the maximum return from his investment.

"WHAT MY CAR MEANS TO ME"

UNDER the above title the Willys-Overland of Canada have just published a small booklet for distribution among the trade. It contains 75 prize-winning letters in the contest conducted by the Willys-Overland Company last year.

Believing that the testimony of motor car owners would prove conclusively that the automobile was no longer a luxury but a necessity, and that the personal efficiency of the people could be developed by the extended use of motor cars, Willys-Overland staged this contest, offering \$5,000 for the best letters on "What My Car Means to Me." Upwards of two thousand car owners participated, representing men and women in all stations of life and almost every district of Canada.

The letters are a regular gold mine of sales arguments and should be of inestimable value to dealers. Copies of the booklet can be had by applying to Willys-Overland, Limited, Toronto, or at the branches at Montreal, Winnipeg and Regina.

HOME TOWN BOOSTER WEEK

NOW is the time to get some business for yourself by staging a home town booster week. Broach the proposition to the local newspapers of having a home town booster week during which there would be automobile parades to all parts of the city for the purpose of acquainting people with the city and boosting the sale of real estate and home products. Most newspapers would gladly boost such a proposition. Then arrange to have ten or twelve of your car at the head of the procession each day and have placards on the cars stating that the cars you sell are always first. This sort of a stunt would be inexpensive and would get a lot of publicity for you and would boost the sales of cars appreciably.—Motor World.

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Better Equipment

THE CHIEF thing that the automotive repair shop has to merchandise is its service. It is fundamental that the public be educated to expect satisfactory service. The motoring public has got it into its head that the average automotive repair shop is a place where a car goes in to have repairs done and comes out again not a great deal better than when it went in, but considerably more greasy and accompanied with a huge bill.

Now it doesn't matter much how this reputation was built up but it does matter that the public be re-educated as soon as possible.

It is necessary to clean up, to apply system, employ good mechanics, and install equipment. The lack of labor saving equipment is a disadvantage and may be one reason why some owners think their repair bills are too high, just as it may be the reason why some dealers say their repair department doesn't pay.

It has been the experience of dealers who have installed labor saving equipment that it brought more business to their shops and enabled them to do a better job at a lower price.

The poorly equipped shop has little chance in competition with the shops well tooled up. It takes longer to do the work, doesn't turn out as good a job, generally speaking, and has to charge more.

Let's do all we can to increase our equipment, to add to our efficiency and to convince the public that we are in a position to give our best service at a reasonable cost.

Mail Order House Competition

IT HAS been customary in the farm machinery, and in the tire and accessory business for dealers to knock the mail order houses of the big cities. They say that the competition of the mail order house is unfair, that it cuts prices and in every way interferes with the business of the dealer.

Now we are not going to knock the mail order house, nor are we going to criticize the dealer for doing so, but we would like to say one or two things on the subject which have occurred to us from time to time.

The dealer will not help himself any by simply abusing the mail order house—which after all is a business organization carried on under the strictest business rules. The only way to beat the mail order house in open competition is to a certain extent to adopt mail order house methods. In other words take a leaf out of their books.

Organization, knowledge, industry and brains are the guiding stars of all such houses. They don't think of trying to sell goods in a particular territory without first studying that territory thoroughly; studying it to see what kind of goods it can absorb, in what quantities, the reputation and financial ability of its population, and the possible competition. When this knowledge is acquired, the territory is literally deluged with advertising and publicity material of every description. Nothing is left to chance; everything is done to bring their goods before their prospects and to sell them. After a sale is made, which means after a prospect has

asked for a certain article, delivery is effected as speedily as transportation facilities will allow.

Is it not logical to presume that, if such tactics sell for the mail order house, which is usually miles away and minus the personality of a salesman, they will also sell for the dealer who is on the spot?

It will be said here that even were the dealer to adopt the publicity methods of the mail order houses he would still lose in the race owing to the price-cutting policy of such houses.

Now as every dealer knows the only appeal the mail order house has that the dealer doesn't have is this cut in price, but, on the other hand to offset that, the dealer has something more potent than a cut price, and that is real service.

Price cuts won't make the tractor run nor keep the tire in shape. The dealer should use every means to bring his service to the notice of his customers. He should shape his advertising to show what he has to offer that cannot be secured from the mail order house nor outbalanced by a cut in price. Knocking won't do much. Adopt the best out of the mail order house methods, add intelligent selling and efficient service to this and you will have nothing to fear from long distance competition.

Good Roads With Trucks and Trailers

THE MOTOR truck properly equipped plays an important part in the road building program of the country and there is no doubt but what the activity of the motor truck in this direction is going to be far more pronounced as years pass.

Trucks equipped with dump bodies not only make it possible to build roads quicker but also much cheaper than is possible by using teams.

To realize the full benefit made possible by trucks it is necessary that they be equipped with the proper dumping equipment and it is also necessary to study the particular hauling problem involved, in some cases five yard loads are necessary but in other cases one yard loads are most desirable.

Canadian companies have been manufacturing dumping equipments for several years and have made a special study of this branch of the truck industry and are able to furnish dump bodies in sizes from one to ten cubic yards. These bodies can be furnished in both automatic and power operated type.

Whilst the truck has proven a big factor in economical road building it is still possible to improve upon the high standard of efficiency made possible by the use of trucks and that is by using trailers also equipped with dump bodies.

Under average conditions a five-ton truck is capable of pulling a five-ton trailer fully loaded besides the load carried on the truck. To haul a trailer behind a truck means an increased operating

expense of approximately 15 per cent. but this extra 15 per cent. the load per trip it is estimated gives a reduction in the hauling cost of approximately 42½ per cent. per ton mile.

With the big road building program ahead of us it is necessary to use the best equipment possible because the country wants the proper kind of roads built as cheaply as possible and in order for the contractor to fill the bill it is necessary for him to have up-to-date equipment. Dealers should study this problem carefully and be able to advise as to right kind of equipment. A thorough understanding of truck operation and the use and advantage of trailers in this connection will go a long way to help the truck salesman in his efforts to interest his prospects in "doing it with trucks."

The Farmer Is Coming Back As a Buyer

THERE are many signs indicating that business is on the mend, the most interesting and encouraging of which is the improvement in the prices of farm products. With grains and other farm products going up in price there is a strong feeling that farmers will realize much more from their 1922 crops than they did from those of 1921. This in turn will help all other industries for the farmer will again be in the market as a large buyer.

There has been a noticeable increase in buying already on the part of the farmer. The recent cut in the price of tractors has started buying again in this line. Tractor manufacturers and dealers are looking for a substantial increase in sales and signs are not lacking that the implement industry, generally speaking, is rapidly picking up.

The automobile industry is also being affected by this improvement in the farm market. Speaking on the farmer as a buyer of automobiles, Walter Chrysler, chairman of the board of the Maxwell Motor Corp., said recently:

"Farm buying will have an important part in the progress of the automobile industry in June, July, August and September. There has been considerable buying recently by the farmers, due to an increase in prices for some of their products, notably corn and hogs, and this business will grow as the demand from other of their products brings better prices.

"Buying by the farmers after September will lessen, but it will greatly exceed their buying in the winter months of this year and last when it was practically stopped."

Collier's Weekly discussing, in an editorial, the marked improvement in the buying power of the farmer has this to say:

"While the prices paid to the farmer have been going up, the prices of other commodities have been coming down. An outstanding example is the fact that the farmer can buy a good tractor to-day in the United States for \$395, as compared with practically twice that amount some months ago.

"Thousands of farmers, coming into the market to buy all the things which for many months they have gone without buying—farm machinery, clothing, furnishings, everything which they and their families need and use—will have a far-reaching effect on our factories and our retail stores. That will touch all of us; an important customer has returned, ready and able to buy.

"Confidence in the future has to a considerable extent been restored. There is evidence that the business pendulum swings too far to the side of pessimism. While the relative value of the price the farmer receives and the price he pays for the things he must buy is still unsettled, much progress is being made in the right direction."

Motor Shows Start Buying

DURING March motor shows and motor show weeks have been held all over Canada and exceeded in stimulation of interest in the automobile and in sales the most sanguine expectations of the promoters.

It would seem beyond all doubt that the automobile industry is due for a generous increase in sales. Dealers in all the important centres report that sales are good and not confined to any particular grade of car. The trade is in better spirits than for a long time.

One Toronto dealer whose line is a popular priced car estimated that March was one of the best months his firm ever had.

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Install a Lathe—Watch Your Profits Grow

The Lathe Is One of the Most Useful Tools in the Service Station. It Can Be Used for a Large Variety of Operations. How to Set Up the Lathe, the Various Kinds of Tools and How to Keep Them in Shape, and Some Operations Are Discussed in This Article

By M. G. COCHRAN

THE modern garage should be well equipped with the latest type of machine tools, for these assets will increase profits, and advertise for you the brand of service you are ready to give your customers. To cover all the necessary equipment in one article is impossible, but let us take first that most versatile and important machine—the "Lathe."

This, briefly, shows the important parts, and as a description of the operation of a lathe would entail considerable detail, we will pass on to what a garageman should know about setting up a lathe after he gets it into his shop.

Good Location For Lathe Essential

First be sure and pick out a good location. Place the machine where the operator will get plenty of light, and make sure to erect the lathe on a good floor. This is essential, for the floor must be strong and free from vibration, otherwise you will never get accurate work. Where possible, a concrete foundation is the best. Using a level, see that it shows

tool, (l) a boring tool, and (m) an inside threading tool. These are the types usually adopted, and while certain modifications exist in special cases, the ones shown are ample for the garageman's purpose. In each case the arrow shows the direction of the feed to the tool. In some cases a tool may be fed in two directions, for while the drawing at (a) shows the tool feeding out from the center, it can be fed toward the center if so desired.

Setting The Tool

The setting of the tool is most important, and for cutting threads, turning tapes, or boring, the height of the tool should be about 5 degrees above the center of the work as shown at Fig. 3 (a). The clearance of the tool differs according to the material being cut, and a little practice will soon enable the operator to learn the proper height on different jobs. The cutting

the head spindle. This makes a more accurate job and the head stock is more able to absorb the strain than the tail stock. When facing the end of a shaft, you can use a side tool as shown at Fig. 3 (b) with good success. In centering a shaft, make sure you use a proper countersink, and that you have the true center of the piece, otherwise all the other operations will be a failure.

Where a hole is bored in a piece, you can insert a mandrel and do the remaining operations with the

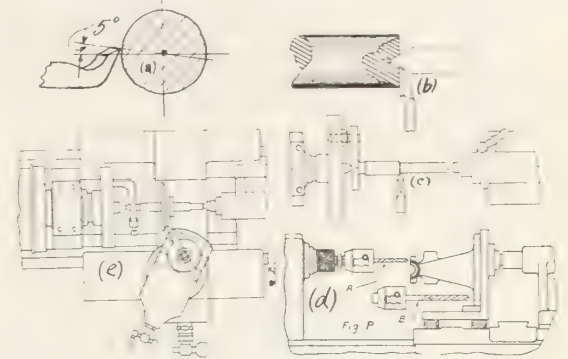


Fig. 3.

part running on the mandrel between the lathe centers. As stated previously, either a face plate or chuck can be used on the main spindle, where the work is supported between centers, a face plate is used, and a dog fastened to the work and held in face plate as shown at (c) Fig. 3 is adopted.

Work That Can Be Done on a Lathe

The variety of parts capable of being completed in a lathe is surprising, and where a garage owner does not have a drill press, the lathe often completes work that looks like a drill press proposition. For example look at (d) Fig. 3. Here we have an ordinary drill chuck mounted in the bore of the main spindle, and a bracket set up on the saddle of lathe, (with tool post removed,) the operation performed being the drilling of cap holes in top of bearing, and holes in base. This is only one of thousands of other drilling operations which can be successfully performed on the lathe.

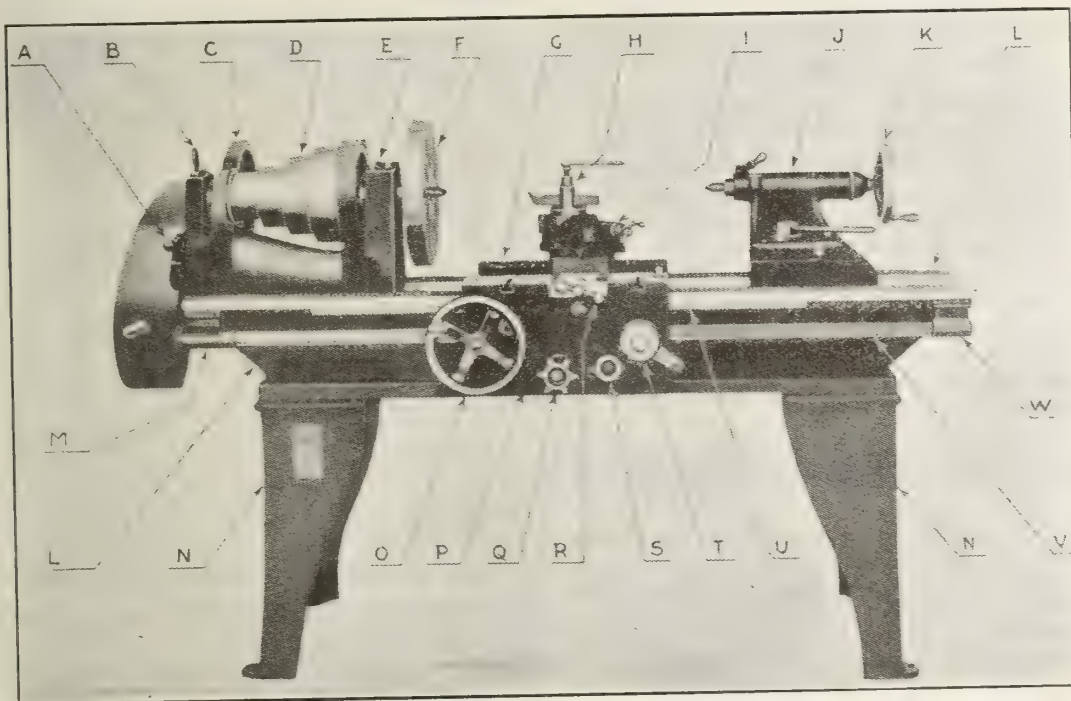
Where you have work to cut on an angle, set over the compound rest to the desired number of degrees as shown at (e) Fig. 3, and the rest is easy.

The lathe can also be used as a straightening medium. Suppose you have some connecting rods which require straightening, here is what to do. Fasten an angle plate to the cross slide of the lathe, placing in this plate a stud which fits the hole in large end of rod. Another long rod which has each end tapered to a point and a diameter equal to the size of the bore of the small end of connecting rod, is slipped into this hole, and held in this way. A clean bar can then be used to straighten the connecting rod, until the two tapered points coincide with the head center and tailstock center of the lathe.

Connecting rods can also be re-bored on the lathe, an angle fixture being used to hold the one end, while the boring tool is completing the other. Pistons and piston rings can also be completed very advantageously on the lathe, in fact any boring, turning, recessing, threading, facing, drilling, countersinking, milling or keyway cutting operation.

Pump bodies, camshaft bearing bushes, crankshafts, hubs on fan driving pulleys, shafts of all natures, truck hubs, bevel, spinal, and spur gears, can all be turned, bored and faced on the lathe.

If you want your lathe to turn out accurate work, give it a fair chance. Keep it clean and oil both lathe and countershaft daily. Given reasonable care a lathe should last for many years. The chief advantage to any garageman in the owning of a lathe is this. It allows him to do this intricate repair work himself. He is not dependent on some outside repair machine shop for the quality of job, and more important still, it keeps just that much more profit in his own pocket.



This shows a type of lathe commonly used in garages. "A" is lever for reversing direction of rotation of feed gears. "B," back gear lever. "C" back gear. "D" spindle cam. "E," headstock. "F" shows fan plate, "G" the saddle. "H" tool post. "I" compound rest. "J" tail stock. "K" the wheel operating the tail centre. "L" the lathe bed. "M" lead screw bracket, head end; "N" the legs. "O" apron hand wheel. "P" apron. "Q" the apron clutch. "R" cross feed ball crank handle. "S" cross feed lever knob. "T" apron nut cam. "U" the rack, apron clutch. "V" the lead screw, and "W" lead screw bracket at tail stock end.

the same position when placed across the bed of lathe at both the head and tail end. Use an accurate level, not a cheap one, and when levelling up, use only solid packing under the legs. Attention and care in this respect will increase the life of the lathe at least 50 per cent., and will allow it to turn out accurate work.

Wherever possible, place the countershaft directly over the lathe, but when necessity requires, it can vary up to eighteen inches front or back of the center line. Level and align the countershaft with the machine, see that the belt runs evenly and smoothly on the pulleys when fastened around same, then you are ready to commence operations.

Before actually performing work on the machine it is wise to study the tools, their shape and what they should be used for. Many people use small tool bits in tool holders in place of forged tools, but after all the shape of the cutting edge is practically the same, so that when you grasp the principle of the forged tools you have the idea for all tools. For example, at Fig. 2 (a) we see what is known as a left hand side tool, at (b) a right hand side tool, (c) a right hand bent tool, (d) a right hand diamond tool, (e) a left hand diamond tool, (f) a round nose tool, (g) a cutting off tool, and (h) a threading tool, (j) shows a bent threading tool, (k) a roughing

edge of tool should not extend too far from the tool post, especially on heavy work, and when taking a roughing cut, get it deep enough to go below the outside scale, otherwise the edge on the tool will not last for any length of time.

When a tool requires grinding, see that it has plenty of clearance, a good rake, and a keen cutting edge, but this again is something obtained through practice. When machining a job between centers, the feed of the tool should always be, if possible, towards

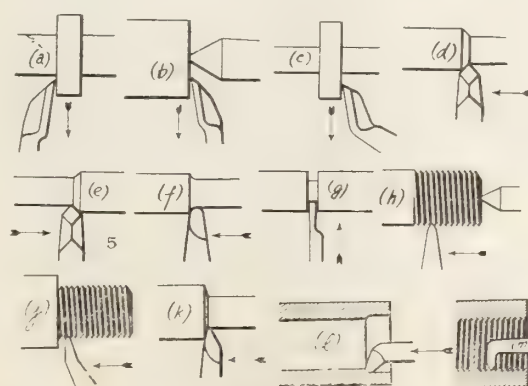


Fig. 2.

How to Establish a Fixed Price System of Charging for Repairs

This Article Outlines the First Steps in Establishing the Flat Rate System. The Table Is Supplied by the Ford Motor Company and Is Based on Operations on the Ford Model T. The Figures Were Compiled From Data Collected From Dealers in All Sections Operating Under Widely Varying Conditions

HOW ARE we going to bring business to a normal solid rock basis? This is the question that is, or should be, uppermost in the mind of every live business man. The answer is this—stop waste, stop lost motion, make every movement count and keep prices reduced as low as possible.

If you do not hold the cards which will enable you to reduce your labor charges consistent with fallen car, parts and accessory prices, there is something radically wrong with your system.

How can it be done?

1st—Clean up.

2nd—Go over your repair equipment and install any labor-saving devices you lack.

3rd—Install an up-to-date accounting system.

4th—Install a flat-rate labor charge on repairing. This latter item has been one of the biggest assets to many dealers in reducing repair charges.

Hit and Miss Method vs. Flat Rate

Few dealers using the old hit and miss method of repairing glance at the customer's viewpoint. They do repairing only because they are obliged to, and if you ask them whether or not the repair shop pays them the answer will usually be "I don't know," or in the negative. This is the reason the customer's viewpoint is not considered. Satisfied customers are the only means a dealer has of building a prosperous business. Why should a customer put off going to your shop until his car gets in such a condition that further driving is impossible; then only through necessity he takes his car to you for repairs and finds that you cannot give him a satisfactory answer as to the labor cost of making the necessary repairs, and after the job is completed he likely finds that the bill is many times in excess of what he expected. Do you think he will be a satisfied or dissatisfied customer? Will his car be a liability or an asset to you?

There is only one way to awake from this nightmare of repair-shop charges—install a flat rate labor charge—put system into your repair work—have your mechanics put their time where it belongs—do not give them a chance to take a half-hour's sleep every day after lunch on your time. You will never know how efficiently and profitably your shop can be operated until you do.

It all sums up to this—by installing system in your shop you will reduce your overhead—you will have more efficient workmen—your shop will be on a paying basis—you will be able to give better service—you will avoid all arguments with customer over labor charges when the job is completed, and you will create a satisfied community. It wasn't altogether the amount (in the past) that you charged your customer, it was the way you did it. Now, with a fixed labor charge for every operation, when a customer comes in and asks you for your charges you say: "Here they are," and hand him a statement of labor charges just as you would hand your banker your financial statement. Your customer realizes you are doing business in a business way and is satisfied to have you do his repairing.

You say it is too confusing, too complicated to install, but after you have your machinery in motion you will be surprised to find how simple and efficient it is.

Standardize Every Operation

Before figuring out your repair charges it will necessitate your standardizing all repair operations. For instance, you have a rear axle to repair; it may not need more than a thrust washer to remedy the trouble as far as your mechanic can detect from casual observation, yet there may be other parts required which if installed at the time would save the customer delay at a later date. When the axle is out, in every case tear it down and inspect every part of it, including the drive shaft. So in every case, whether

it be to clean a spark plug or overhaul a motor, standardize the operation. In this way you can standardize your labor charges. In standardizing your repairs, use your best mechanic, let him do the job thoroughly, note each operation, and in the future insist that these operations be carried out in identically the same way.

In figuring out the correct charge you must, of course, take into consideration that the repair business has its busy and slack days, so your charge must be figured high enough to cover this, also to cover your overhead, etc.

Because of the great variation in labor and overhead in different parts of the country it would not be possible for us to set a standard rate. You know

THINGS TO OBSERVE

- Before figuring out repair charges, it is necessary to standardize all repair operations.
- Use your best mechanic for this; let him do the job thoroughly; note each operation, and in future insist that these operations be carried out in identically the same way.
- Figure high enough to cover your overhead, and to take care of the dull days.
- Reduce the time on each operation as much as possible by checking up your men; cull out the dead ones and make your good ones more efficient.

from past experience just how much per hour your men should bring you in order to cover this overhead. Multiply this by the time taken to do the job. This can be obtained from the following chart, which is the average amount of time set by the Ford Motors Co. required for the various repair operations.

In using the flat rate you should check up on your men, cull out the dead ones and make the good ones more efficient; your whole repair system will then become more efficient and you will be able to reduce the time taken on different operations in line with reduced prices of parts. This will not only make it possible to reduce your labor charges to your customer, but increase your profit also.

Note.—Flat rate labor charge applies only to time taken to make the repairs and should be quoted as such to the customer, making it plain to him that all necessary parts must be paid for at list price plus surcharge.

Labor Operation Time Costs

The following figures show the average time in which the different repair operations on the Ford Model T car are performed by the well-equipped and efficiently managed service stations. These figures were compiled from data collected from dealers in all sections of the country operating under widely varying conditions. If more time is consumed on some of the operations than shown in the list the dealer should conduct an investigation and endeavor to bring his shop up to a higher standard of efficiency in that particular. This can be accomplished by the installation of more up-to-date equipment or improved methods of handling the operation.

Motor Division

The following time covers work on cars driven into the service station:

No.	Operation	Hrs.	Min.
1	Overhaul motor and transmission	16	
2	Overhaul motor only	12	

3	Overhaul transmission only, or repair or replace magneto	9	
4	Rebrazed crank case arm or support or repair leak in case of taking out the motor	6	
5	Install or refit one piston or one connecting rod	4	
6	Install or refit two or more pistons or connecting rods	1 30	
7	Tighten one connecting rod bearing	1 30	
8	Tighten two or more connecting rod bearings	3	
9	Replace transmission bands	2	
10	Replace transmission cover gasket	1 45	
11	Change motor	4	
12	Replace cam shaft, and refit bearings	3 30	
13	Replace cam gear—large	2	
14	Replace cylinder front cover	1 30	
15	Grind valves and clean carbon	2 30	
16	Remove carbon only (This operation to be used only when customer will not permit grinding of valves)	1 30	
17	Repair cylinder head bolts stripped—one or two	2	
18	Repair cylinder head bolts stripped under dash	4	
19	Clean out oil feed pipe	2	
20	Replace head gasket	45	
21	Replace radiator or all three hose connections	30	
22	Replace one hose connection only	15	
23	Replace crank shaft start pin, or pulley	1 15	
24	Tighten motor to frame	1	
25	Clean crank case or install gasket under lower cover	30	
26	Replace carburetor or manifold—or repair leak in manifold	30	
27	Install new butterfly spring	30	
28	Overhaul carburetor	1	
29	Replace commutator wire loom	30	
30	Replace commutator case or brush	30	
31	Replace commutator pull rod joint	30	
32	Replace or rebush fan pulley assembly	30	
33	Adjust clutch fingers and trans. bands	30	
34	Adjust trans. bands only	15	
35	Stop oil leak in valve doors	15	
36	Install trans. band springs—each	30	
37	Replace cylinder water jacket plugs	15	
38	Install new starting crank handle	30	
Operations 5 and 15 combined on one order	4	30	
Operations 6 and 15 combined on one order	3	50	
Operations 12 and 15 combined on one order	5	30	
Operations 15 and 17 combined on one order	3	30	
Operations 9 and 19 combined on one order	6		
Operations 10 and 19 combined on one order	8		
Operations 30 and 31 combined on one order	45		

Parts Brought In or Shipped In for Repairs:

55B	Overhaul motor and transmission	12	
56B	Overhaul motor only	9	
57B	Overhaul transmission only	3	
58B	Rebore cylinder only	1	
59B	Rebore cylinder only including fitting of pistons	1 30	
60B	Rebore and fit pistons and valves	2	
61B	Rebore and fit pistons, valves and push rods and straighten and fit cam shaft	3 30	
62B	Fit pistons, crank shaft and run-in (rebored block)	1	
63B	Rebush three transmission drums	45	
64B	Rebush transmission drums—each	15	
65B	Rebush and re-rivet three triple gear assemblies	1	
71B	Braze crank case arms and supports	1 15	
72B	Repair crank case drain plug housing	1 15	
73B	Overhaul carburetor	45	
74B	Disassemble 5-8," 9-16" or 3-4" magnets from flywheel and install new set	30	
75B	Straighten crank shaft	30	
76B	Straighten cam shaft	30	
77B	Straighten cam shaft and fit bearings	1	
Operations 71B and 72B on one order	2 30		

Rear System Division:

The following time covers work on cars driven into the service stations:

96	Overhaul rear axle and rebush springs and perches when necessary	4	
97	Repair or replace drive shaft tube	3	
98	Repair or replace one rear radius rod	1	
99	Replace rear spring tie bolt or new leaf including polishing and graphiting of leaves and lining up of body	2	
100	Remove front and rear spring, polish and graphite leaves only	3	
101	Replace spring perches	1	
102	Pad rear spring to line up body or replace rear spring tie bolt only	1 30	
103	Rebush spring and perches	1 30	
104	Install universal joint	2	
105	Straighten axle shaft (without removing from car)	1	
106	Tighten rear radius rod	30	
107	Install felt and steel washers	45	
108	Install brake shoes and equalize emergency brakes	45	
109	Tighten universal ball cap bolts	30	
110	Install or tighten rear spring clips	30	
111	Tighten rear hub lock nut	30	
112	Fit new hub keys	30	
113	Replace pull rod supports	30	

No.	Hrs.	Min.
114 Replace or rebush hub brake cam—each side...	1	15
115 Replace rear axle assembly.....	1	15
116 Adjust pull rods or replace one	30	
117 Straighten rear radius rod (in car).....	30	
118 Install outer bearings—each.....	45	
119 Replace rear axle shaft, drive shaft pinion or drive gear (no other work necessary).....	3	
Operations 96 and 99 combined on one order.....	5	30
Operations 96 and 102 combined on one order...	5	
Operations 96 and 110 combined on one order...	4	30

Parts Brought In or Shipped In for Repairs:

140B Overhaul rear axle	3	
141B Straighten or repair rear radius rod	30	
142B Overhaul differential assembly with shafts.....	1	30
143B Remove old and press new gear on axle shaft—each	15	

Front System Division:

The following time covers work on cars driven into the service station:

167 Overhaul front axle including rebushing of springs and perches when necessary, straightening and lining up and adjusting of wheels	3	30
168 Rebush spindle bodies and arms—each side.....	1	15
169 Replace or straighten front axle (no other repairs)	2	
170 Rebush spindle body—each	45	
171 Rebush spindle arm—each	30	
172 Replace broken off radius rod ball cap stud.....	2	
173 Replace front spring tie bolt or new leaf, including polishing and graphiting of leaves.....	2	
174 Replace front spring or tie bolt only.....	1	15
175 Install or tighten front spring clips	30	
176 Tighten radius rod or steering gear ball cap	30	
177 Replace radius rod	30	
178 Straighten front radius rod and line up front assembly	45	
179 Replace spindle arm or body and line up assembly	45	
180 Replace radius rod ball cap with new style.....	30	
181 Tighten all sockets and joints of front end...	1	
182 Replace or straighten spindle or steering gear connecting rod	30	
Operations 167 and 172 combined on one order ...	5	
Operations 167 and 173 combined on one order ...	5	
Operations 167 and 208B combined on one order ...	5	

Parts Brought In or Shipped In for Repairs:

202B Straighten front axle	1	
203B Straighten radius rod	30	

204B Install stud in radius rod	30	
205B Rebush spindle body and arm	30	
206B Rebush spindle arm	15	
207B Rebush spindle body	15	
208B Rethread front axle by drilling out and bushing..	2	

Chassis Division

The following time covers work on cars driven into the service stations:

Front end and frame—Model T

228 Replace front cross member	4	30
229 Replace front cross member when radiator is off	4	
230 Straighten front cross member (without removing from car)	2	
231 Replace rear cross member	5	
232 Replace side member or frame	15	
233 Install engine pans	45	
234 Tighten engine pan	30	
235 Tighten crank case front end bearing cap	45	
236 Install hood clips or springs on hood board—each side	30	
237 Free up hand brake lever	30	
238 Remove radiator to replace radiator stud or tighten fender brackets	45	
239 Replace starting crank ratchet pin	30	
240 Replace starting crank or sleeve	45	
241 Install running board bracket	1	45
242 Repair hand brake lever assembly including replacing of pawl	45	
243 Replace hand brake lever quadrant without removing running board shield	1	
244 Tighten all bolts and nuts on car.....	2	
245 Tighten body bracket bolts	30	
246 Install tail lamp bracket	45	

Fenders and Running Boards

258 Replace one fender or running board.....	30	
259 Tighten all fenders, running boards, shields and truss rods	1	15
260 Remove fender or running board and straighten	45	
261 Replace running board shield.....	1	30
262 Install fender-to-shield bracket—each.....	30	
263 Install metal tool box	30	
264 Replace rear fender iron	30	
265 Replace truss rods	30	

Dash

276 Replace dash	3	
277 Replace dash when motor is out.....	1	45

278 Tighten dash bracket to body and dash	45	
279 Replace coil box and install Yale lock	1	
280 Replace coil box, install new switch on coil box or repair the box	30	

Steering Gear

291 Overhaul steering gear including replacing of quadrant or gear case and rebushing of bracket	2	45
292 Overhaul steering gear when motor is out	2	
293 Tighten rivets of internal gear case	1	
294 Tighten at dash and rebush bracket.....	1	
295 Replace wheel or spider	30	
296 Tighten at dash and post	30	
297 Replace steering gear assembly.....	2	
298 Rebush bracket only.....	30	
299 Tighten steering gear case cover	30	

Muffler

310 Change long exhaust pipe	30	
311 Replace muffler	30	
312 Repair muffler	45	
313 Repack exhaust pipe pack nut.....	15	

Gas Tank and Line

323 Repair leak in Touring Car gas tank.....	1	15
324 Repair leak in Touring Car gas tank (when necessary to remove body)	5	
325 Clean sediment bulb, gasoline feed line and drain carburetor	30	

Hood

336 Straighten hood	1	
337 Install hood leather	30	

Radiator

348 Overhaul radiator	5	
349 Install new core in radiator	3	
350 Repair radiator, solder one or two tubes	1	
351 Solder neck or top tank or repair without removing from car	15	
352 Solder casting to lower or top tank when necessary to remove radiator	1	
353 Replace broken pet cock	15	

Wheels

365 Change hub, gear or front	1	
366 Replace wheel and tire—each	30	
367 Adjust and dope front wheels	30	
368 Remove front wheels and replace bearings parts..	1	
369 Line up front wheels	30	
370 Oil and dope car, including graphiting springs..	1	

Vancouver Has Used Car Clearing House

New Sales Company Represents Car Dealers. All Cars Placed on Floor Ready for Demonstration. No Repair Department. Dealers Put Cars in Shape Before Handing Over For Sale

THERE is no doubt in one's mind after talking to the various motor car dealers in Vancouver that the BIG problem right now is the used car.

There are such large numbers of used cars on the market that until something constructive is done towards getting these used cars into use and out of the market, the sales of new cars must perforce be seriously retarded.

Very many schemes have been devised and tried with a view to taking care of the used car business, but many dealers feel that the competition among dealers to sell new cars, and their corresponding willingness to bid with each other on the amounts they are willing to allow for the old cars turned in is putting too great a strain on the financial resources of many dealers. Some failures have resulted and the popularly expressed opinion is that the firms have been broken by their accumulation of old cars which they did not have the good fortune or ability to sell.

One new concern has recently opened up in Vancouver under the name Used Car Sales Co., 933 Pender Street, West. The manager, Ellis S. Wood, was for four years in charge of the used car department of the Begg Motors, Ltd. In speaking about the new business, Mr. Wood stated to Canadian Motor and Tractor, "One of the directors of this concern spent a few months traveling through the United States and Canada studying the various successful means taken by dealers all over the continent in disposing of their used cars. It was found that the most successful have divorced their used car department entirely for their new car business. The used cars are neither quoted nor displayed in the new car salesroom. In every case it was found that the used car business interfered with the demonstration and sale of new cars. Various methods of selling, advertising, and recruiting used car salesmen were studied, and on a basis of the best plans found, the Used Car Sales Co., was founded."

This sales company represents car dealers. It

By ROY A. HUNTER

does not make trades that involve paying cash "to boot."

All cars are placed on the floor ready for demonstration, there being no repair department maintained. As Mr. Wood says, "There is not a monkey wrench on the premises. The dealer who traded in the old car does whatever is necessary to put the car into saleable shape. If it is the make of car for which the dealer is the agent, the car is overhauled and put into good shape, otherwise it is merely oiled, greased and cleaned and sold for what it actually is. It has not been found feasible to take all used cars and thoroughly overhaul them; the cost cannot be recovered. Most dealers in Vancouver during the last two years have been paying, or allowing more for the used cars than they could be sold for—much less, sold at a profit. And I want to say right here that the selling of a used car should show a profit on its own account and not be charged against the sale of new cars. That savours too much of the small town general merchant who will pay retail prices for his customer's eggs, expecting to make his profit from the sale of his goods to that customer. Each sale must show a profit in itself. That is the reason why the motor dealers have formed this Used Car Sales Co.—so that the sale of a used car can be made at a profit as a separate transaction.

"In our advertising, I will not detail just how we proceed, but I will say that it is HOT SPOT advertising that links up the salesman with his prospect without any waste effort.

"This way we have recruited a good staff of salesmen, is this: We have found that if we advertise for motor car salesmen we have crowds of mere youngsters from whom to choose. Therefore we have advertised for MACHINERY SALESMEN. Now the business in machinery is dull, but the ability required to successfully sell machinery is anything but dull. Therefore, we have chosen from the machinery

salesmen who replied to our advertising, a staff of expert salesmen with good technical knowledge. Our sales per day, have been quite gratifying.

"Our slogan is 'BUY WITH CONFIDENCE' and we are making each sale in such a manner as to retain and increase the public confidence in our used car business. The salesman that permits a car to go out of this place through any misstatement will be fired.

"I understand that every other point in Canada and the United States has to find some immediate way of taking care of the number of used cars that are on the market, and from our investigations we believe that the separately conducted establishment devoted entirely to used car sales is the best answer to date."

The experience of many, or most implement dealers on the prairies where, after a few years' business experience they find that most of their profits are tied up in the used machinery which rusts in their back yard, is not without its lesson to the automobile dealer, and the easy trading methods of one dealer has an exact parallel in that of the other. Happily there is a broader market for used cars than there is for used farming machinery and it is hoped that greater sales effort will be directed toward the used cars before the congestion, and consequent financial embarrassment, becomes too acute.

FAVORS FLAT RATE SYSTEM

IT is my prediction that within three years every reputable repair shop will be operating on some form of flat rate system. Whether we like it or not, we've got to come to it and when we do come to it, we'll be surprised at just how low our past efficiency has been.

To me the necessity for standardizing repair operations is so obvious and so simple of accomplishment that it makes me mad when I hear a service manager say that it is impracticable in connection with his particular product.

N. A. HAWKINS (General Motors).

Why Do Carburetors Fail to Function?

Mechanically a Carburetor Is a Very Efficient Instrument; There Is Practically Nothing to Wear Out, Yet for Some Reason It Sometimes Fails to Function. This Article Describes the Principle of Carburetors and Their Adjustment and Gives Hints on Overcoming Characteristic Troubles

THE average service man knows that the ignition system of a motor causes more trouble throughout the life of a motor than any other system. Yet he also knows that frequently the most baffling bits of trouble shooting he has to do is in the carburetor, or somewhere in the fuel system of the engine. When the ignition system goes wrong, the engine may stop dead, and refuse to fire another shot, or it will cause misfiring, which, whether regular or irregular, always results in one thing—stopping of the engine, locating the trouble, removing it, and the engine will run as before. Ignition trouble symptoms are usually fairly plain and not hard to diagnose. But, when the engine runs in an unsteady, half-hearted, sluggish manner, the trouble is usually to be found in the fuel feeding mechanism. Any-one who has been face to face with tractor trouble shooting knows that it is always easier to master an

By L. G. HEIMPEL, B.S.A.

The more fuel vapor and less air than these limits, the richer the mixture and the less chance of an explosion. When fuel is cut off and air supply is increased beyond the mentioned limit, the vapor will burn slowly, and we lose power from too lean a mixture.

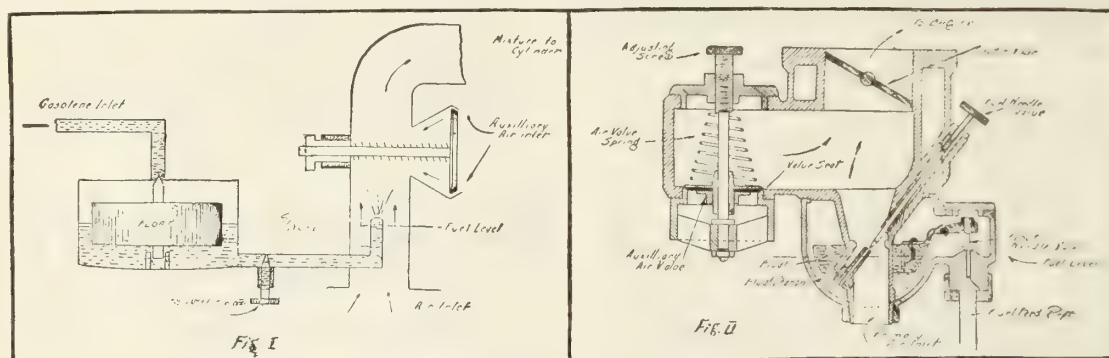
The first thing we think of when investigating the carburetor system of any particular tractor or car, is the fuel supply. The carburetor must possess a supply of fuel for instant use at all times. This is taken care of in many different ways. In some machines the fuel tank is situated below the level of the carburetor and either a pump, a vacuum feed device, or air pressure are employed to force the fuel to the carburetor's supply-chamber, or fuel bowl. In

portion of gasoline to air becomes greater owing to the increased speed and pressure of the air. This causes too rich a mixture, and in order to counteract this tendency a secondary or auxiliary air valve is provided in all carburetors where extreme variations in speed are demanded of an engine. This valve, shown in Figs. I and II is composed of a poppet valve held on its seat by a spring. At slow engine speed it remains closed, but as soon as the suction created by the pistons becomes strong enough to overcome the resistance of the auxiliary air-valve ring this valve opens and allows some air to enter above the nozzle. This air does not pass the fuel nozzle and does not become saturated with vapor. Therefore, as it becomes mixed with the air which, owing to the speed of the engine is overlaid with gasoline vapor it dilutes the rich mixture so that it makes an effective, economical, easily burning mixture. The proper amount of fuel and the correct stiffness of the auxiliary air valve spring are adjustable and the success with which an engine will do its work depends on these adjustments, which must be intelligently made.

Adjusting a Carburetor

When one is not familiar with the principles or which a particular carburetor is operated, it is best not to meddle with any adjustments. Supposing however, that through some unforeseen circumstances it is necessary to adjust the carburetor, the following procedure is a safe guide.

In adjusting any carburetor, the first thing to do is to get the engine running. If it will not start, see whether or not a spark is present, then see that the gasoline tank is not empty and make sure that gasoline gets into the float chamber freely, if all these are found to be satisfactory the adjustments of the carburetor may be regarded with suspicion. Turn the needle valve in a clockwise direction until it will not go any further, but do not try to turn it after it meets with any resistance, because too much pressure is liable to injure the point of the needle-valve. Now file a small notch into the thumb screw for a mark then turn it to the left about one and one-half revolutions, and try to start the motor, making sure to pull the choke or priming wire while cranking. When the engine starts, let it run until warm, then with the spark retarded and the engine running, say, five hundred revolutions per minute, turn the needle valve to the right until the engine slackens for want of fuel, and mark the place, now turn to the left



Diagrams showing a simplified form of carburetor, illustrating the principle on which it works.

absolutely dead engine than it is to correct the minor troubles of one which runs but poorly, and especially is this true if the cause of poor running is located in an intricate carburetor.

The service man usually knows the purpose of the carburetor. To some men it is the instrument which feeds the gasoline or kerosene, as the case may be; to others it means what it really is—the device which mixes fuel vapor and air in such proportions as to make a combustible mixture. Some men are thoroughly familiar with say one or two kinds of carburetors, but when they are asked to look at a strange device, they are helpless. These men have studied carburetors or have learned what the car tractor will do when it has insufficient fuel, and when it has too much, and they know how to remedy this by adjustments. These men have studied carburetors. Other men will know how to treat any carburetor which is properly designed to do the work, no matter whether or not they have ever seen it before. These men have studied not only carburetors, but carburetion, the principle upon which all carburetors are designed and made.

Some of The Principles of Carburetors

When an open dish of gasoline is set on fire, a flame will burn on its surface till it is all consumed. This fire will not be violent, because it is not the gasoline in its fluid form which is burning, but the gasoline-vapor which can burn faster than its production allows. Kerosene will not burn when confined to a dish, at normal air temperatures. It does not give off gases fast enough to maintain a flame until it is heated to about 212° Fahr.; then it will act very much like gasoline. When gasoline or kerosene vapor and air are mixed, in correct proportions, the mixture will burn very rapidly even at ordinary air pressure, and if this mixture is drawn into an engine cylinder and compressed to say five times air pressure or 75 lbs. to the square inch, it will burn so fast that the result is a violent explosion. The proper proportion in which this mixture must exist in order to explode is one part of fuel vapor to fourteen parts of air, both by weight, for a rich mixture, and about one to seventeen for a good running mixture.

the majority of cars and tractors, however, gravity is made use of to carry the fuel from the tank to the carburetor; the fuel tank being placed on a higher level than the carburetor, which is equipped with a device to regulate the amount of fuel flowing from the tank.

Frequently there is more cause for trouble in a fuel system before the fuel reaches the carburetor, than there is in the carburetor itself. Therefore, the tank, piping and valve system, should be thoroughly understood by both operator and repair man.

While modern carburetors are, to many of us, more or less complicated instruments, they all operate on similar principles, and in the end produce the same results. In Fig. 1 is shown a simplified diagram. The first requirement to successful carburetors is an unstinted supply of fuel ready for immediate use; this necessitates the float chamber in which the float keeps the fuel at a certain level as long as there is any fuel in the tank. The float shown in Fig. 1 is the simplest form of float. As the float chamber fills up the float rises until the needle point enters the supply pipe and shuts off the flow. When the engine is running fuel is consumed, the float drops and more is allowed to run from the tank. Thus the fuel is maintained at a certain level which is known as the "Fuel Level Line," this line is practically the same in all carburetors, and may be said to be about one-eighth of an inch below the tip of the spray nozzle as shown in Fig. I. The amount of fuel which can be drawn from the spray-nozzle is, of course, regulated by the needle valve or adjusting screw shown in fig. 1.

The suction of the pistons causes a rush of air into the air inlet of the carburetor; as it passes the nozzle the fuel is drawn from it in a spray, is vaporized and mixed with the air on its way to the cylinders. This air passage is generally contracted where it passes the nozzle so as to increase the suction on the nozzle and also to bring all the air passing closer to the fuel supply. This is known as the "Venturi" principle after its inventor.

As the speed of the engine is increased by the opening of the throttle valve, shown in Fig. II, the suction from the pistons becomes stronger, the pro-

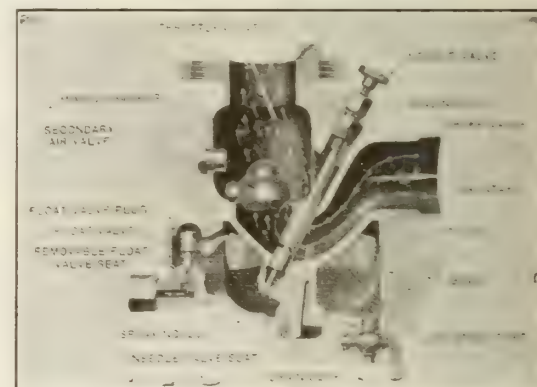


Fig. III. Sectional view of carburetor.

again until the motor again slows down, this time because of an excess of fuel. A point half way between rich and lean extremes is about a correct mixture. When the engine reaches maximum temperatures and is under load the mixture can be made more lean by either feeding more air or by cutting off a little gas at the needle valve.

Where an auxiliary air valve is present in a carburetor it is well, in case an engine refuses to start, to see that this valve sets firmly on its seat when the engine is standing. Then, when the engine is warm and the slow speed gasoline adjustment has

been found, the spring controlling the opening of this valve can be slackened until the motor "back-fires" or "oops" into the carburetor, when the throttle is opened suddenly, which means too lean a mixture when the spring may be tightened slightly. This will give an optimum richness of mixture of gasoline and air under practically all speeds.

Learn to Interpret Engine Sounds

After the service man has studied his carburetor and is familiar with its appliances, all that is necessary to make a reasonably good job of carburetor adjusting is a little common sense and some practice. It is necessary to be able to interpret the language of the engine, because to the trained observer it will certainly make itself understood in a very clear way.

There are, of course, different methods employed in carburetor construction to bring about the same results. For instance, we have carburetors such as the "Kingston," in which auxiliary air is admitted through holes covered by ball valves, the weight of the balls varying from a fairly light ball, which is lifted off its seat as soon as the engine reaches from five to six hundred R. P. M., to heavy ones which are not raised until the engine reaches almost maximum speed. This type has only one adjustment, namely the gasoline needle valve. There are other makes of carburetors, in which the designer depends solely on the size and design of the primary air passage to take care of all speeds, and supplies no auxiliary passage. Here again, there is only one adjustment. Such carburetors are usually used on engines supposed to operate at governor speed, and the air passage is designed so as to give the best mixture at that speed. Hence they give good results in tractor work. Though for variable speed work, such as is demanded in the automobile field, the more flexible the auxiliary air supply, the better the carburetion.

The Differences Between Automobile and Tractor Carburetors.

In figs. III and IV are shown two carburetors which are in use on modern tractors. Their operation will be clear when the cuts are studied. While the Kingston carburetor in Fig. III. has only one adjustment, the needle valve, there are two distinct air passages, a primary or low speed passage, and a high-speed passage, or secondary air valve. When the throttle valve is almost closed, as in idling speeds, all the air is drawn through the tube surrounding the needle valve and marked low speed tube. This

means that a sufficiently rich mixture is assured for low speed and for starting the motor. When the throttle is opened, the suction increases sufficiently to raise the heavy metal flapper valve, marked secondary air valve, off its seat. This allows a rush of air past it which will become mixed with the richer mixture already drawn through the low speed tube and provides a supply of the explosive mixture for the next charge.

Tractor carburetors are designed to give their most perfect mixture when the engines for which

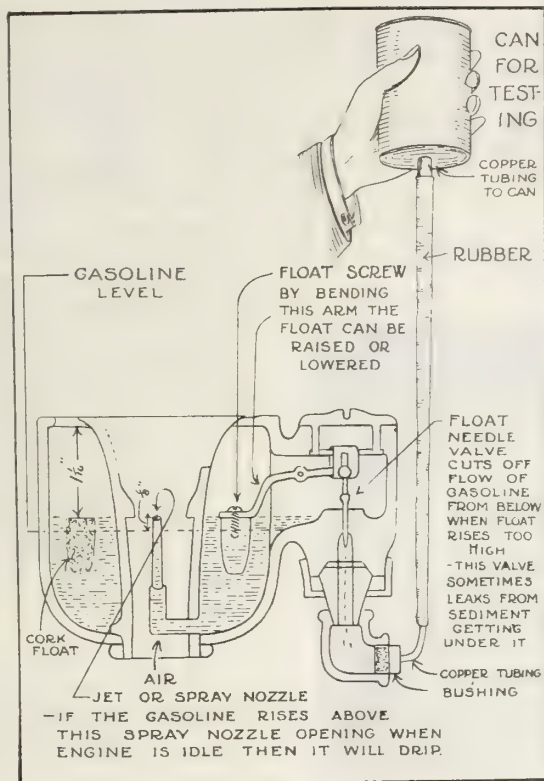


Fig. IV.—How to test the fuel level.

they are made are running at governor speed. Many of the frills in the way of metering pins, compensating air valves, and multiple jets, which are used in automobile carburetors for the purpose of giving a uniform richness of mixture over a wide range of

engine speeds, sometimes from 300 R. P. M. to 3,000 R. P. M., can be eliminated from tractor carburetors, because a tractor must be essentially a governor controlled engine. It is, however, necessary that a tractor carburetor be so designed as to deliver with this view uppermost that tractor carburetors are designed.

Some Carburetor Troubles

A great deal of fuel could be saved every year if all motorists and tractor-men would always try to run on as lean a mixture as possible. A rich fuel mixture means the following:

- (1) A waste of fuel.
- (2) Undue carbon deposits in the cylinders.
- (3) Overheating, which in a tractor means a stoppage of work and much lost time.
- (4) Loss of power.

A carburetor is a very sensitive instrument, and while it may require a rich mixture to start a cold engine, it should always be cut down after the engine is warm.

Mechanically, a carburetor is a very efficient instrument; there is practically nothing to wear out, yet for some reason or other they sometimes fail to function. Fig. II shows the float, float needle valve and feed pipe. As soon as the level of fuel in the float chamber has reached a certain height, the float will close the passage. If the float does not rise with the fuel, the valve will not close, and the contents of the tank will leak to the floor, through the fuel needle valve or by overflowing the float chamber. A cork float may become heavy with fuel which has found its way into the pores of the cork through the cracking off of the shellac floating. To cure this the float must be dried and re-shellaced. Dirt under the float needle valve will also prevent the valve from seating and can be removed by "tickling" the float, that is, pushing it down to raise the needle-valve off its seat so as to allow the dirt to be washed away. Sometimes a float will become stuck to the sides of the carburetor float chamber, which will prevent its acting on the float needle-valve, causing dripping of the carburetor. Water in the fuel can cause a great deal of trouble, and when an engine stops with the spark going strong, and the fuel tank not empty, it is well to drain the float chamber and watch the nature of the flow from it; water can easily be detected by letting the fuel flow drain on a piece of sheet iron.

The "Three Musketeers" of Business— Manufacturer - Dealer - Customer

WE ASSUME the majority of our readers have read the story of the Three Musketeers, by Dumas the celebrated French author. To those who haven't, we would recommend it as a good healthy adventure story, and the record of the accomplishment of difficult deeds against odds.

Sometimes in works of fiction we can find encouragement in meeting and overcoming the very real obstacles which we encounter from day to day in business. Dumas has given a motto to his Three Musketeers that is a model when co-operation and team play is the subject under consideration "All for one and one for all."

The three men forming the famous trio were of various temperament, appearance, ability, and each excelled in his own way and according to his own particular talents. When these varying abilities were linked together by their motto, and that slogan sincerely adhered to, their combined efforts were almost irresistible.

We can hear some reader say that if we attempt to bind Three Musketeers bearing the names of CUSTOMER, DEALER, and MANUFACTURER together, working under a motto of "One for all and all for one" that we have an impossible alliance.

The logic of such an argument is sound, if we assume that it is an alliance of compulsion, but it isn't impossible by any means if the union is held together by mutual confidence and respect for legitimate rights of the other members. This may all seem far from the field of practical business, but let us see for a moment, if, after all, it is so very far removed.

This is a Trade Journal, therefore, it is fair to assume that the majority of our readers will come under the class of dealer or of manufacturer, and may wonder why consideration should be given to the par-

By G. B. WHEELER
Factory Sales Manager Canadian Fairbanks-
Morse Company

ticular welfare of the customer. We know that such a thought will not occur to anyone with the least conception as to what is best for the permanent good of the business with which he is connected.

The customer should consider himself a member of the trio and be prepared to follow the motto, because he owes an obligation to himself to do business with people who haven't self as their whole aim and object in life. He contributes his share to the welfare of the alliance, by placing his order for goods and paying for same, believing that the other members will see that he gets real value for his money. This also means that the customer is not going to neglect or abuse the equipment, and then tell the manufacturer that the equipment failed due to faulty material or construction.

Do you realize that even though a customer succeeded in securing something for nothing on such a basis—the manufacturer or dealer wouldn't be the greatest loser? The loss of self respect on the part of the customer who follows such practice makes him the greatest sufferer. Material can readily be replaced, but character as represented by honesty and self respect is difficult to regain, when undermined by the action dishonest, no matter how small that action may be.

The Dealer is the Important Link in the Scheme

The dealer enjoys a very important position in the trio. He is the D'Artagnan of the selling scheme of which he forms a part. Supposedly he has the in-

terests of customer, manufacturer and self at heart. That means he will first of all be careful in the selection of goods he handles, have nothing to do with lines of questionable value, and when he has decided to take on a line, he places behind it enthusiastic sales effort. The real dealer makes promises to his customer, which he can keep, because failing to keep the promise usually means failure to keep the customer.

The manufacturer can only help the dealer keep the promises made when the dealer embodies such special arrangements or promises in the written order or contract. If there is reason to believe that there is a condition in the sale that would be unacceptable to either customer or manufacturer, better eliminate the condition or the contract, because the dealer is in business for profit, and misunderstanding never made profit for anybody yet—except lawyers.

Then in times like these, don't be like the frog, which sat on the bank of the pond, all day, with his mouth open waiting for a fly to wander in, but rather figure that the days of easy orders are past and it is real sales efforts that bring results.

The manufacturer who is marketing goods via the dealer route has his obligations and part of the burden to carry. We are referring more particularly to the maker of more or less complicated machinery, such as cars, tractors, engines, lighting plants, etc. Up to the shipping platform the manufacturer has full control, and by test and final inspections can be sure that the duty of the factory is well performed, but his responsibility does not cease there, and in those cases where the occasional machine gets through which is not up to standard, then it is his duty to see that neither customer nor dealer is the loser.

MARCH SHOWS GAINS IN AUTOMOTIVE INDUSTRY

NEW YORK, March 28—March will show a decided improvement over February in the manufacture and sale of motor vehicles. Orders already booked by makers of parts and materials assure a better business for April than for this month. Beyond April the outlook is uncertain but there probably are few industries which can look as far ahead as May 1 with assurance of satisfactory sales.

A few parts plants are running at capacity and a substantial number of them are producing at 50 per cent of capacity, or more. The total of sales by parts makers in February was approximately double that of January and aggregated the business done in March, 1921, which marked the renaissance of the industry after the slump.

The better business which is being enjoyed by parts manufacturers is due in part to the deflated inventories of motor vehicle builders but not all of it, by any means, can be attributed to this cause. It demonstrates conclusively that both passenger cars and trucks are being sold in much greater volume than at the same time last year. Neither branch of the industry is building up a reserve of completed vehicles and all makers are holding their schedules approximately to actual retail sales.

Spring sales at retail, in substantial volume, have begun nearly two months earlier than they did last year. Speaking comparatively, there may be a falling off after May, but a production total of passenger cars equal to 1921 is practically certain and the total of trucks will be substantially larger.

The tone in Detroit is immeasurably better than it was at this time last year and confidence has replaced uncertainty. This confidence is solidly founded and few manufacturers have extravagant hopes. They are studying their markets with the greatest care and making dealer allotments on this basis. They have learned that the agricultural districts will take a considerably larger number of vehicles than was thought possible only two or three months ago. The same is true of the export field.

Sane and intensive sales efforts are being made. Greater attention than ever before is being given to service questions and economy of operation. The industry now realizes that the buying public is "motor wise." This is an important factor when it is considered that a very substantial part of the business this year will be in replacements.—Motor Age.

DURANT ANNOUNCES THE STAR CAR

NEARLY 27,000 people attended the first showing of the new Star car, W. C. Durant's latest achievement in motor car construction, in Washington, D. C., Thursday, March 9. Durant officials stated that more than one thousand retail orders were placed with deposits for models of the new car with delivery promised in June.

Since Mr. Durant announced some time ago that he would produce a four-cylinder, five-passenger automobile to sell in the United States at \$348, the country has awaited its showing, anticipating the possibility of something out of the ordinary in motor car production.

The Star is a conventional type automobile, with recognized standard parts. From semi-elliptic springs to vacuum feed gasoline tank and electrical equipment, it confirms the early conjecture that its first showing would startle the industry.

"The new product is to be known as the Star car," said Mr. Durant. "It is to be manufactured by Durant Motors, Inc., under a contract with the Star Motor Car Company, which will control the distribution of the car in the United States and its possessions."

The Star car is powered with a Red Seal Continental motor. It has a disc

clutch, selective sliding transmission with three speeds forward and reverse, Timken bearings front and rear, Timken rear axle, conventional hand lever brake, internal and external brake bands, and full chassis of conventional type with Hotchkiss type driving shaft.

The "tubular backbone," an exclusive Durant feature, gives the chassis unusual rigidity and strength. The body is full five-passenger and its streamline design includes a high hood and slanting windshield. The Star will be produced in all popular models.

Durant Motors of Canada, announce that the new Star will be manufactured at the Leaside plant for the Canadian trade.

RUGGLES TRUCK APPOINT SER- VICE DIRECTOR

THE RUGGLES Motor Truck Co., London, Ont., recently announced the appointment of R. G. Davies as field service director for the provinces of Ontario and Quebec.



R. G. DAVIES.

Mr. Davies' duties will be confined to the service side of the Ruggles business. It will be his duty to keep constantly in touch with all Ruggles trucks in use and see that they are maintained in continuous operation, with the minimum loss of time for repairs. He will not in any way represent the sales department and his sole interest in sales will lie in the fact that good service will be productive of more sales to satisfied users.

GORDON MCGREGOR, HEAD OF CANADIAN FORD, DIES

GORDON M. McGregor, vice-president and general manager of the Ford Motor Company of Canada, died in the Royal Victoria hospital, Montreal, where he had been confined for some days. Death followed an operation for intestinal trouble.

Gordon Morton McGregor was born in Windsor, Ont., January 18, 1873 and was educated in the public schools of Windsor and Winnipeg. In addition to being vice-president, treasurer and general manager of the Ford Motor Company, of Canada, Limited, he was a director of the Ideal Fence and Spring Company, Windsor, Ont., director of the Children's Aid Society; director of the Essex health association; director of the Windsor Petroleum and Refining Company; president of the Automotive Industries of Canada, Toronto; and chairman of the Essex Border Utilities Commission. He had occupied the position of vice-president, treasurer and general manager of the Ford Motor Company of Canada from 1904 up to the time of his death.

With the Manufacturers

C. W. Nash has announced the promotion of C. B. Voorhis as vice-president and director of sales of the Nash Motors Co.

The Whitney Tractor Co., Cleveland, Ohio, announce that they have opened an export office at 90 West St., New York City.

George Valentine, of the Massey-Harris Company, has been elected president of the Bain Wagon Company, of Woodstock, a subsidiary of the company.

Beatty Bros. of Fergus, Ont., have been given the contract to equip, complete, a model dairy barn for the Royal house of Roumania and supply the fittings for the horse stable.

The daily output of the Durant Car Co., of Leaside, Ont., has increased to nearly 25 cars a day since the first of March; 4,000 cars are expected to be finished by the first of July, 1922.

The Climax Rubber Co., of Canada, has been incorporated with an authorized capital of \$1,500,000 for the purpose of manufacturing the Climax compression tube. The head offices and factory of the company are at Dunnville, Ont.

The production of Fordson tractors at the River Rouge factory will be doubled on April 1, according to an announcement issued from the factory. There were 10,000 men working at the River Rouge plant when the announcement was made.

The Fedders Manufacturing Co., of Black Rock, N. Y., have purchased the Lantz Marble works, of Bridgeburg, Ont., where they will manufacture automobile radiators and airplane accessories. The firm will employ 200 workers within the year.

The Aluminum Steel Products Co., one of the latest industries to locate in Owen Sound, have installed two casting machines in which high production is possible. They received a large order from the Ford Motor Co. recently, for small engine parts.

The Canadian Twist Drill Co., Walkerville, Ont., extended their plant recently and added some new equipment for the manufacture of motor parts. They report an improvement in their twist drill and small tool business, especially from the automobile industry.

The Sawyer-Massey Co., Hamilton, Ont., is operating at about 50 per cent. capacity according to R. Hermer, president of the company. The principal efforts of the company at present are centered on engines and road making machinery, the demand for which is encouraging.

The Federal Motor Truck Company announces the establishment of a factory branch at San Francisco, with a completely equipped sales and service plant at 1123 Post St. J. H. Hartzell is vice-president of the local operating company. E. S. Jones has been made manager and G. F. Currie of Detroit, secretary and treasurer. A good many truck sales were made and numerous dealers have been appointed by this company during the past thirty days.

L. G. Peed, for more than a year manager of the Willys-Overland branch in Toledo, has been named assistant sales manager of Willys-Overland, Inc. R. E. Butler, zone supervisor for Iowa, Nebraska and Missouri, will succeed Peed at the Toledo branch. W. A. Kiracofe, formerly sales manager of the Banting Mfg. Co. there, has been named retail sales manager of the branch to succeed L. J. McCracken, who will have charge of the Pacific coast territory for Willys-Overland.

The Timken Roller Bearing Co., have opened a branch in the Walker Bldg., Walkerville, Ont.

The Universal Wrench Co., of Windsor, Ont., plan to move their plant to Amherstburg, Ont.

The Canadian Aluminum and Brass Company has taken over a factory in Windsor, Ont., where they will manufacture castings for motor cars.

The Hayes Wheel Company, of Chatham, Ont., is making an effort to secure business with British Automobile firms who are in the market for 20,000 chassis during the present year. W. Kistler, manager of the company, has left for Britain to negotiate the business.

The Ford Motor Co. has placed the responsibility for selecting the implements for particular territories to go with the Fordson Tractor on the Fordson dealers. Dealers will also be responsible for the implements and machines sold by them.

Senior officials of the Canadian Oil Companies, Limited, were in Winnipeg from Toronto attending a week's conference of western managers. Among the officials who came from headquarters were H. F. Littlefield, vice-president; H. F. Hoecker, secretary, and A. C. Morris, manager of the lubricating department.

Canadian Aluminum & Brass Company, has taken over a plant in Windsor. J. P. Carritte, president of the company, has been associated with the General Aluminum and Brass Company, Detroit, for many years. The company proposes to manufacture castings for motor cars. The Windsor company expects to start production this month.

At a meeting of the Board of Directors of the Ford Motor Co., of Canada, Mrs. Gordon M. McGregor, wife of the late first vice-president, was appointed a director to fill the unexpired term of her husband. Wallace R. Campbell, who for some years has been secretary and assistant treasurer, will succeed to the position of first vice-president and treasurer. Mr. Campbell's old position will be filled by P. W. Grandjean, assistant secretary.

It is stated that the plants of the General Motors of Canada, Limited, at Oshawa and Walkerville, Ont., are running full time, and quite a number of the departments are working overtime in an endeavor to fulfil the demand for their products. The daily output for the past three months has been 150 finished automobiles, and the schedule for the next two months calls for a daily output of from 175 to 200 finished automobiles.

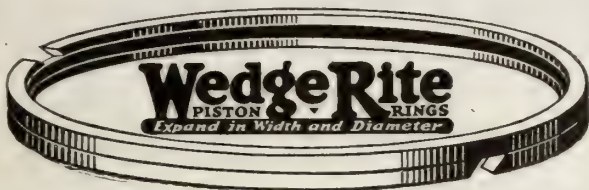
Sarnia's latest industry, the Pendergast Fence Company, Limited, opened its operations in the manufacture of wire fencing, in the latter part of last week, and is now turning out the rolls of fencing for distribution to many parts of Ontario and Eastern Canada. The large and modern loom which steadily transforms the strands of wire into sound fencing, runs ten hours a day turning out something like 2,600 rods in the course of that one shift.

AKRON PREDICTS RAISE IN TIRE PRICES

AKRON tire manufacturers are predicting an increase in tire prices from about 10 to 15 per cent. within the next 30 days or so. It is also predicted that the first revision upward of tire price schedules will be followed closely by another of perhaps similar rise and that both increases will be in force before June 1.

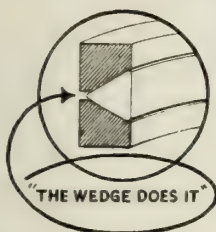
Hints to Buyers

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Immediate
Service
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Patented throughout the World.
Canadian Patent Nov. 1917.



Wedge Rites particular stunt in this world is doing the unusual.

For that outlaw motor, for the man that demands the utmost power, in short for unrivalled performance select.

WEDGERITE PISTON RINGS

Manufactured by

The Piston Ring Co., Limited

Montreal, Que.

The Penetang Carriage Co., Ltd.

Factory—Penetang, Ontario

Sales Office: 742 Yonge St., Toronto

**Manufacturers of
High Grade Commercial Bodies**

GASOLINE MOTORS \$50.00 and up 4 CYLINDER—4 CYCLE

20 horsepower and up, these motors are taken from high-priced automobiles, and can be used for any purpose where power is required. Hundreds of these motors in use all over Canada are giving satisfaction in motor boats, tractors, cutting boxes, sawing wood, running machinery, etc. We also carry the largest stock in Canada of slightly used parts for motor cars of all kinds.

Satisfaction or refund in full, our motto.

Shaw's Auto Salvage Part Supply
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TORONTO

SAFES FOR SALE

One J. & J. Taylor Safe, inside dimensions 15 inches deep, 2 feet 6 inches wide, three feet, 11½ inches high and fitted with a built in compartment. Price \$250.00

One J. & J. Taylor Safe 18 inches deep, two feet 9 inches wide, four feet 5 inches high, fitted with a steel compartment. Both safes are in good condition and can be bought at a price that will save considerable money to the purchaser. Price \$200.00. Box 100

BOX 100, MOTOR & TRACTOR, 153 University Ave., Toronto

"Fills Groove
and Cylinder
for the life
of the ring"



"Positive
Expansion
in both
directions"

Pat. Mar. 2, 1915, Feb. 29, 1916

PRESSURE—PROOF PISTON RINGS

are being sold and recommended by the following jobbers. Ask them about Pressure-Proof Rings.

James Cowan, London, Ont.

Lewis Bros., Montreal

Can. Fairbanks Morse, St. John, N.B.

C. Kloepper, Toronto

Rice Lewis, Toronto

Samuel Trees & Co., Toronto

J. H. Ashdown Hardware Co., Winnipeg, Calgary, Saskatoon, and Edmonton.

Manufactured by

Pressure—Proof Rings Limited

Sherbrooke

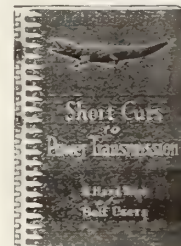
Quebec

Profitable Addition to Dealer Stocks

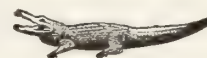
Every stock item has two possible values. Profit in itself and profit in other lines that it sells. When an item such as Alligator Steel Belt Lacing has strength in both features, it becomes mighty valuable in stock—especially now when dealers are planning on increasing their range of sales.

Every power farmer—and that means the progressive farmer whose trade is valuable—will be better off for using Alligator lacing. Thousands are already using it. Hundreds of thousands are reading about it in our National Advertising in farm papers.

Ask your jobber. Make arrangements to handle Alligator Steel Lacing. Write us for catalog, prices, etc.



"Never
Lets go"



Reg.
U. S.
Pat.
Off.

FREE BOOK

Send now for this valuable hand book on belting. Used in many technical and agricultural colleges. We will tell you why Alligator is a doubly profitable trade builder. Leading jobbers stock our line. When writing, give your jobber's name—manufacturers also invited to write us.

Dealers, Attention!

Get our propositions on

Portable Saw-Mills,
Gang and Single Edgers
Gasoline and Kerosene
Engines

Emery-Grinders
Water Bowls,
Plow-points, Etc.

GRAY IRON AND BRASS CASTINGS

The Cochrane Foundry & Machine Works

Tillsonburg

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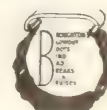
Ontario

BROUGHTON'S BLOWOUT BOOTS

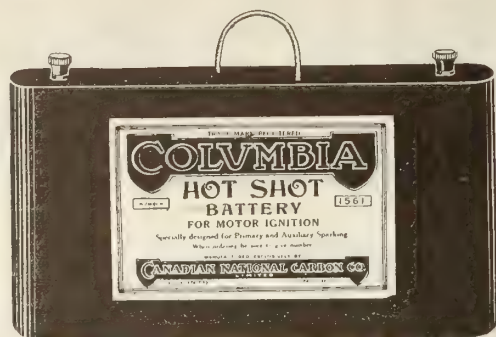
(Formerly Steeltire Clasps)



The centre plates are now being made of Cold Rolled Steel. Cuts for Catalogues supplied on request at all good jobbers.



THE GEO. H. BROUGHTON Co., 126 WELLINGTON ST. W.,
Toronto



1922 the Banner Year for COLUMBIA

Columbia dealers should prepare for the largest sales of Columbia Dry Cells they have ever enjoyed. The prestige of the Columbia line is in itself an assurance of a steadily increasing sale—but the advertising and sales plans which will be put into effect by the Company this year will make Columbia sales increase faster and to a greater volume than ever before.

The dealer who stocks and pushes Columbia Dry Cells has the advantage of his competitor. Columbia Dry Cells have an enviable reputation for quality and long life—a reputation built up through years of testing by a critical public.

Columbia advertising is nation-wide. It reaches into the hamlets and villages as well as into the towns and cities where many thousands of Dry Cells are used.

Not only will newspaper, magazine, and farm paper advertisements be used to create public demand, but the dealer will be plentifully supplied with striking window and store displays.

If you are not already a Columbia dealer, ask our representatives or your jobber's salesman about Columbia Dry Cells. It will pay you in handsome profits.

Always specify "Columbias" by name when ordering dry cells.

CANADIAN NATIONAL CARBON CO. LTD.
MONTREAL TORONTO WINNIPEG VANCOUVER

Columbia Dry Batteries

—they last longer—

NEWS—OF THE TRADE FOR THE TRADE

ALBERTA

LEDUC:—A new tractor and farm implement business has been opened here by P. S. Adamie.

MAGRATH:—A. N. Smith, proprietor of the Magrath Motors, whose place of business was destroyed by fire recently, will commence rebuilding operations immediately.

CALGARY:—Dicks Garage is the name of a new automobile business opened here.

BRITISH COLUMBIA

VANCOUVER:—A new firm, the Used Car Sales Company, has opened quarters at 933 Pender Street west, under the management of Ellis S. Wood, formerly of the Begg Motor Company.

NEW WESTMINSTER:—J. C. Benning has been appointed Maxwell and Chalmers agent for New Westminster. Mr. Benning has a well equipped garage on Blackie Street with storage space for 60 cars.

MANITOBA

WINNIPEG:—E. T. Musson of Burlington Products Co., Hamilton, Ont., visited Winnipeg on business recently.

A Dominion charter has been granted to the Bolt-On Sleigh and Carriage Co., Winnipeg.

MARITIMES

ST. JOHN, N. B.:—Sixty-one cars have been entered for the St. John Motor Show, April 3-8, almost double the number ever previously displayed in this province. The accommodation in the immense Drill Hall will be taxed to the limit, in placing these exhibits and finding room as well for the accessory houses that desire to make a showing. Practically every car sold in New Brunswick will be seen, all of them this year's models.

ONTARIO

PAISLEY:—R. Thompson has purchased the Porter Garage and will handle all repairs.

PALMERSTON:—A new garage business has been opened here by Emburg and McRae.

TORONTO:—Giles, Rice and Peters, Danforth Ave., Toronto, have been appointed agents for the McLaughlin-Buick cars.

ST. THOMAS:—F. H. Kettle, proprietor of St. Thomas Motor Sales Co., has secured the local agency for the Paige cars.

BARRIE:—A new garage will be erected at the corner of Queen and Yonge streets by Mr. Burton, a well known dealer in Barrie.

STRATFORD:—R. Brothers has just added a fine new show room to his garage. He handles Oldsmobile and Paige cars and Ruggles trucks.

WHITBY:—The Central Garage has become incorporated with a capital of \$40,000. A new part was added recently to the garage at a cost of about \$8,000.

HAMILTON:—The Cadillac Motor Sales are now located in their new premises at 776 King Street east. The repair department is well equipped for service and storage.

BRANTFORD:—T. Southworth, formerly employed with the Massey-Harris Co. here has been appointed to a position with the General Motors Corp. at Walkerville.

KINGSTON:—Used Car and Salvage Company, is the name of a new concern incorporated here. The company will devote all its time to handling and salvaging used cars. The directors of the company are as follows:

George A. Palmer, used car dealer, president; T. H. Sargent, vice-president, and Earl L. Martin, secretary.

HAMILTON:—The partnership between R. L. Shaver and A. J. Best in the Central Garage Company has been dissolved. The business in future will be carried on by R. L. Shaver.

ORILLIA:—H. R. J. Holmes & Son, Studebaker dealers, put on a moving picture in the local opera house recently, showing the entire process of manufacturing a Studebaker Light Six.

PICTON:—W. R. Browne and Sons, McLaughlin dealers, have purchased the residence of J. H. Anderson, opposite the Globe Hotel, and will convert it into a garage and show room.

STRATFORD:—C. Fulton of Orillia, has purchased the battery service station formerly conducted by S. K. Young. Business will be carried on under the name of Stratford Service Station.

WINDSOR:—Thieves broke into the Hewitt Battery Service, on Sandwich Street, recently and robbed the safe of between \$140 and \$170 in cash. The thieves broke into the safe with the aid of the firm's acetylene blow torch.

PICTON:—The following automobile dealers in conjunction with other Picton merchants, have decided to operate a strictly cash business on and after April 1: Bloomfield Garage, Picton Garage and the Kemsley-Gerow Garage Co.

BRANTFORD:—Frank J. Strobbridge and Ernest L. Strobbridge who have been conducting the "Used Car Garage" have opened a new business, Motor Sales, and will handle Studebaker cars. They will still continue the Used Car Garage but as an entirely separate unit.

QUEBEC

SHERBROOKE:—The second annual motor show was opened in the Armory on March 20.

QUEBEC:—The P. T. Legare Co. have been appointed distributors for the products of the Peoria Drill and Seeder Co., Peoria, Ill., for the province of Quebec.

MONTREAL:—The Montreal Automobile Trade Association at its annual meeting in the Windsor Hotel recently, appointed the following officers: G. Bergeron, president; A. M. Jaques, vice-president; R. G. Gilbride, treasurer; L. M. Hart, secretary; C. S. Hoben, J. O. Linteau, and Florian Leduc were appointed directors. A. Levesque was re-appointed active secretary.

SASKATCHEWAN

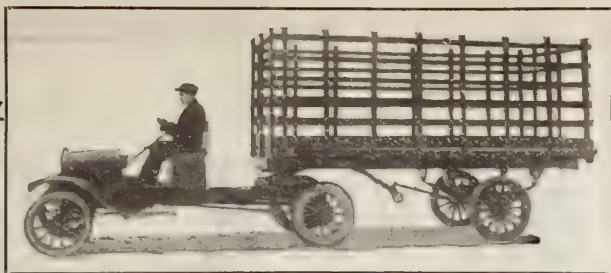
PENZANCE:—An automobile and tractor business has been opened here by Quenett and Marvin.

MOOSE JAW:—Fire caused some damage to the premises of Gray-Campbell Ltd., automobile dealers, recently.

MOSSBANK:—W. J. Welsh has taken over the automobile and implement business formerly conducted under the name of J. E. Welsh and Co.

HERBERT:—At an early hour on the morning of March 21, a fire of unknown origin destroyed the implement warehouse of P. Sawatzky. The estimated loss is about \$15,000. Mr. Sawatzky was agent for the Massey-Harris Company.

MOOSE JAW:—The latest addition to the automobile field in Moose Jaw is the Moose Jaw Motors. The new concern will specialize in Ford cars and will be under the management of J. E. Bainbridge who has been connected with the Ford branch at Winnipeg for some years.



DOMINION TRAILERS

Types and Capacities to Meet all Conditions

THE nature of a man's business, the kind of truck he is using and road conditions determine his trailer equipment. Dominion Trailers are built in types and capacities to meet all requirements.

TYPES AND CAPACITIES	
Four Wheel, reversible and non-reversible	.....1 to 7 tons
Semi	.....2 to 10 tons
Pole	.....2 to 10 tons
Two Wheel	.....1 to 3 tons

What are the benefits of a trailer? Here are a few:

A truck can move twice its rated capacity without strain, but the chassis cannot support the burden with safety; the use of a trailer permits full utilization of the truck's power without overloading the truck, and the increased cost of operation is only 15%. This means a reduction in cost per ton mile of from 40% to 45%. Then the cost of a two-ton truck is three times that of a trailer. The economy effected in the use of trailers is therefore easily apparent. May we submit further information.

Dominion Truck Equipment Co., Limited
KITCHENER, ONTARIO

LETERAIN

Let's go!



"Leterain"
is the World's Recognized
Windshield Cleaner

We guarantee "LETERAIN" to keep your windshield clear during TWELVE HOURS under the heaviest rain or fog and to positively last a whole year, or we'll refund the money. It is the only recognized successful windshield cleaner on the market and stands in a class by itself. It can be used on either wet or dry glass and will give equal satisfaction. Packed in a POCKET SIZE CONTAINER to preserve it from grease or dust when carried in your automobile.

MAIL ONE DOLLAR

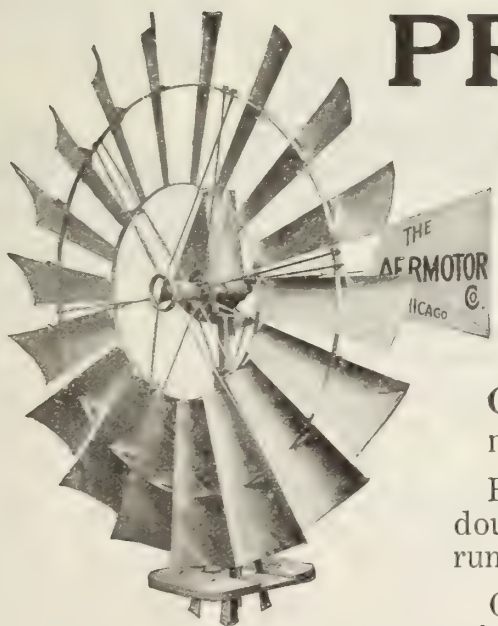
and drive your car in safety and with comfort for a whole year under the worst weather. Remember it will keep your entire windshield clean.



Sole Canadian Licensee

The "Leterain" Sales Company
180 St. James Street
Montreal, Que.

Territorial agents and dealers write for best proposition in the Automotive Field.



PROFITS Every month of the year SELLING THE Auto-Oiled Aermotor

We believe that more real profit is made from the sale of Aermotors than any other line of farm equipment. The discount to the dealer is liberal and he doesn't have to spend all of his profit in running back to make the outfit satisfactory. The Auto-Oiled Aermotor, when once properly erected, requires no further attention from the dealer.

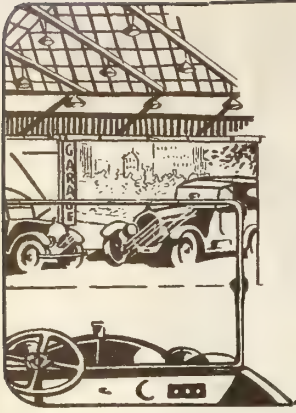
REMEMBER that the Auto-Oiled Aermotor is the Genuine double-gear, self-oiling windmill, with gears inclosed and running in oil.

Oil it once a year and it is always oiled. After 7 years of use in every part of the world, it has proven its ability to run 2 or 3 years, or even longer, with one oiling and without its ever being necessary for anyone to go on the tower.

The Aermotor gives more service, with less attention, than any other piece of machinery on the farm. The Aermotor is skillfully designed, well made, and backed by a company which has a reputation for doing things right.

If there isn't a live Aermotor dealer in your town, write us today

Aermotor Company, 2500 Roosevelt Road, Chicago, U. S. A.



SHOP NOTES FOR THE GARAGE MAN



Hints on the Selection and Use of Grinding Wheels

THE GRINDING wheel in the automotive repair shop is a most serviceable tool. Besides being used for sharpening tools it is indispensable for performing certain operations which could only be carried out with great difficulty with another tool. The grinding wheel when properly operated can be used to cut the hardest metals with ease.

The operation of grinding is nothing more or less than a cutting process.

The cutting tools are the sharp particles of abrasive extending from the face of the grinding wheel. When these small sharp tools are brought in contact, at high speed, with iron, steel, etc., each sharp abrasive grain cuts its own minute chip from the work. These chips resemble those removed by the lathe tool. As these abrasive grains wear or become dulled, they should loosen from the bond which binds them allowing the sharp points that are below to be brought into action, in order that the grinding wheel may do efficient work. If the points are retained after they become dulled, they prevent other sharp points from coming in contact with work, and the cutting action of the grains changes to a rubbing action, causing undue generation of heat that distorts the work, and prevents accurate work being obtained. While on the other hand, if the abrasive grains break away before they become dulled, the wheel is unnecessarily wasted.

From the foregoing it will be seen that the successful operation of any grinding machine depends in a large measure upon the proper selection and use of grinding wheels. Frequently a change of grinding wheel or method of using it will result in greatly increasing the quantity and quality of the output. It is, therefore, important that all operators of grinding machines be informed on this subject.

A grinding wheel is made up of two distinct kinds of material, namely: the "abrasive" or cutting material, and the "bond," which holds together the abrasive grains.

Abrasive materials are of two kinds, natural and artificial. The natural abrasives are emery and corundum. The artificial abrasives are known as adamite, aloxite, alundum, carbolite, carbo-alumina, carborundum, carbondite and crystolon.

The bond of a wheel, in addition to holding together the abrasive grains, also determines the grade or degree of hardness of the cutting wheel. A soft wheel is one where the cutting particles break away very rapidly under grinding pressure. A hard wheel will retain its cutting particles longer.

Different kinds of work have more or less tendency to wear away the wheel. Accordingly, wheels of different grades must be used for different operations. If the wheel is so soft that the grains are torn away before the points have become dulled, then the wheel is wasted. If the wheel is too hard the grains will remain in place too long, i.e., after their points are dulled, and the wheel will glaze over and cut slowly. The ideal wheel on any work is one that furnishes a new

cutting face as fast as the particles in use become dull; in other words, the proper wheel will not glaze, but will remain sharp.

There are from ten to fifteen grades of abrasives to select from, each manufacturer using a different designation for the degree of hardness or fineness. In selecting wheels the repair man had better at first be guided by the advice of the makers, who usually furnish lists giving all information of the uses of wheels with recommendations of particular grades for the different kinds of work.

Speed of Wheel

Before starting to grind, the operator should make sure his wheel is running at the proper speed. It is dangerous to run wheels too fast. As most of the grinding done in the ordinary repair shop is surface grinding, the speeds given here are for that type of grinding. A good surface speed for general purpose grinding is from 4,000 to 6,000 feet per minute. As wheels wear down the surface speed grows less, and the number of revolutions per minute of wheel spindle should be increased, so as to maintain the proper peripheral speed.

Increasing the speed of the wheel makes it act like one of a harder grade. Decreasing the speed of the wheel gives the appearance of a softer grade. Complaints are not uncommon that grinding wheels appear to be softer towards the centre. Usually this is because the same surface rate of speed is not maintained as the wheel is reduced in diameter.

To determine the surface speed of a wheel in feet per minute, multiply the diameter of the wheel in inches by 3.1416 and the result by the number of revolutions per minute and divide by 12.

Truing The Wheel

Good results cannot be obtained with wheels that are even slightly out of true. As the wheel is used it wears down and in the process sometimes gets out of round, and when a great many small surfaces are ground, such as sharpening of drills, etc., the wheel will have a tendency to form ridges and grooves. In such cases it is necessary to dress the surface of the wheel until it is perfectly true again. There are several tools for this purpose. Most of these tools consist of a handle fitted at the business end with a rotary wheel made of steel or chilled iron. The surface of this wheel is roughened by flutes or teeth and as they turn, dig out the bits of abrasive from the cementing material. Another method, used for finer work, employs a diamond tipped tool. The dresser must be held firmly against the wheel. In using a diamond, the point presented to the wheel should be sharp, this is accomplished by revolving the diamond stud in its holders from time to time.

A new wheel that runs out considerably should be trued up at a slow speed and then increased to the proper speed when it should be trued again,

as it may not run true at a high velocity, even if it does at a slower one.

How To Mount Wheels

When mounting wheels care should be taken to place soft washers between the wheel and the flanges. Wheels should not be forced onto the collet as this is liable to cause breakage. The wheel should fit the mandril loosely but not loose enough to cause it to wobble. If the hole is too tight for the spindle it should be enlarged. A wheel should not be mounted if it is not sound. This can be ascertained by tapping lightly and listening for clean ring. The spindle bearings must be tight enough to prevent shake in the spindle, must be well lubricated and must be protected from abrasive dust from the wheel.

The iron flanges that grip the wheel must be recessed, or relieved so that only the outside rim catches the wheel. A soft washer of some sort should be placed between the flanges and the wheel. A piece of heavy blotting paper or a rubber disk will do for this purpose. The inside flange should be keyed to the spindle so that it turns with the spindle. The nut which bears against the flange on the right hand spindle should have a right hand thread and the nut on the left side of the spindle should have a left hand thread. This is so that the nuts will naturally be tightened by the possible slippage of the wheel, not loosened.

Every precaution should be taken to ensure a solid foundation for the grinding stand. Any vibration is hard on the spindle bearings and makes accurate grinding an impossibility.

The grinding wheel should be enclosed in a hood so that if the wheel breaks, the pieces will not fly off and injure the operator.

Water Should Always Be Used

Water on most work is necessary, and should be used wherever possible, except when grinding bronze. Water keeps the wheel clean and free cutting, and prevents the generation of heat, which causes the work to get out of true.

When grinding bronze a thin oil or kerosene should be applied to the work.

The water tank and sediment pan must be cleaned occasionally. The water level in the pan should always be below the level of the wheel. If a part of the wheel is allowed to stand in the water, it absorbs it and becomes heavier at that point, throwing the wheel out of balance, and liable to result in a serious accident when the wheel is started.

Sal-soda and lard oil or grinding compounds added to the water will prevent both the work and machine from rusting.

NEW BLACK & DECKER CATALOGUE

A NEW miniature catalogue has just been released to the trade by the Black and Decker Mfg. Co. of Towson Heights, covering their portable electric drills, electric screw driver and socket wrench, electric grinders, safety cleaning machine, and electric valve grinder. The booklet is profusely illustrated and describes the construction and operation of all the machines listed.

WEAVER SERVICE CAN

THIS service can is designed to furnish a quick, safe and economical means of handling fuel and lubricants for public and private garages and owners of trucks, tractors and motor boats. It will be found especially useful for garages.

The flexible steel hose makes it possible to reach any gas tank conveniently.



ly and does away with the need for porcelain and steel body.

By inserting the nozzle in the vent in the screw cap the makers claim the can is rendered practically air tight, preventing evaporation, contamination and spilling. It is ruggedly constructed of galvanized iron, reinforced by horizontal ribbing and with heavy reinforced bottom. Capacity 5 gallons. Shipping weight, 8½ lbs. Made by the Weaver Mfg. Co.

TURRET LATHE ATTACHMENT

TO FACILITATE the turning of forged bevel gears for automobiles an attachment has been brought out by a manufacturer of turret lathes which enables a higher production to be maintained. The attachment has tool slides and one of these interchanges with the top slide of the regular carriage so that the machine may be used either for bevel gears or for the other classes of work regularly handled on the turret lathe. The attachment is suitable for machining work up to 14 inches in diameter, and to all standard angles. The two tool slides are operated by the hexagon turret and the saddle and they work simultaneously. Racks and pinions are the mediums used to operate the slides. The attachment is manufactured by the Warner & Swasey Co.

AUTOMATIC SPRING LUBRI-GAITERS

AUTOMATIC Spring Lubri-Gaiters, by providing the spring with a durable and waterproof leather covering, having positive sealed joints and end washers, retain the grease around the spring, exclude moisture and dirt and, it is claimed, render further attention unnecessary for upwards of two years.

They are made of the best chrome leather and for any car. Made in Canada by Motor Spring Lubri-Gaiters, Limited.

Ford Engine Stands

The Acme of Convenience —and Strongly Built

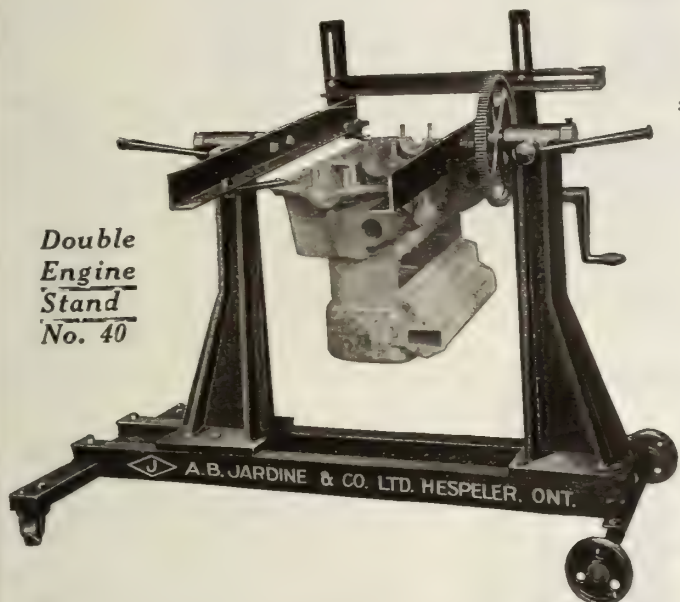
The two stands you see illustrated here are designed on the best principles of construction, providing the simplest and most convenient methods of handling automobile engines. They are as strongly built as they are simple and efficient and will meet most of the requirements of the garage and shop. Ford Engine Stand No. 10—Holds Ford or Chevrolet engines. Positive lock in any position. Weight, 130 pounds.

Prices—No. 10, portable \$33.00
No. 1, stationary 26.60

Ford
Engine
Stand
No. 10



Double
Engine
Stand
No. 40



Geared Portable Double Engine Stand No. 40—Carries engine as shown, or any three-point bearing engine. Positive lock at each end. Weight, 320 pounds.

Prices—No. 40, geared portable \$88.00
No. 3, plain stationary 67.50

We are also manufacturers of presses, floor cranes and wrecking cranes. Write for further particulars.

A. B. JARDINE & CO. LIMITED
HESPELER, ONTARIO

Business is good
with

Overland
TRADE MARK REG.

Toronto retail sales of Overland cars in March passed all records for March of any previous year, and April has commenced with similarly encouraging conditions in the rest of Ontario. In fact, Overland dealers throughout Canada report business conditions as away ahead of last year.

The big increase in the number of Overland owners means increased business, too, for all dealers in tires, fuels and accessories.

Overland is not an assembled car. It is completely made in the Toronto factories. Dealers, therefore, have quick service in obtaining parts from factory or branches.

The New Series Overland is now well established as Canada's Comfortable Low-Cost Car—its dependability and economy are proved by thousands of Canadian owners. The satisfaction of owners and the big turn-over to be obtained from selling a popular car like the Overland make an Overland contract a profitable franchise. We have openings for live automobile merchants in several places and will welcome enquiries.

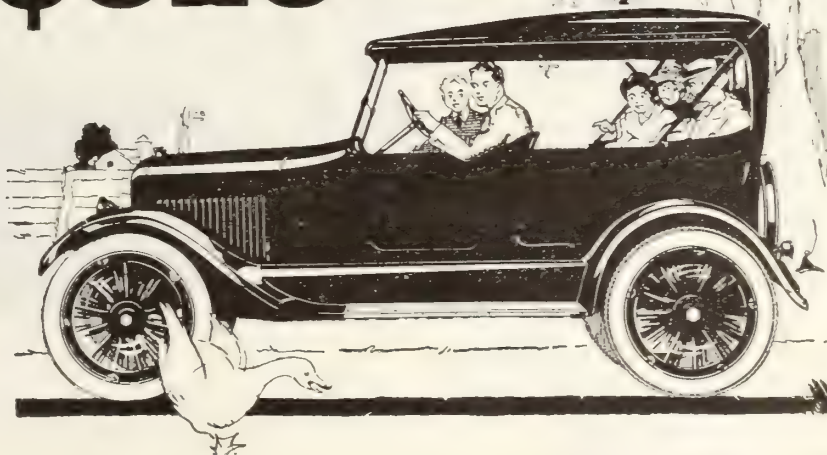
Head Office and Factories:

Willys-Overland Limited

TORONTO - CANADA

Branches: Toronto, Montreal, Winnipeg, Regina

\$825



Touring and Roadster - \$825
Sedan and Coupe - \$1295
F. O. B., Toronto, sales tax extra

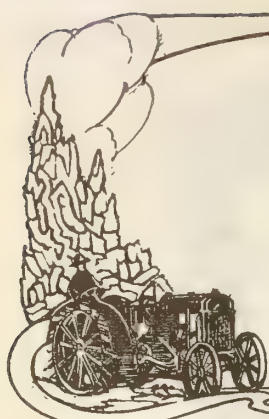
**Low First Cost : Low Upkeep
Low Depreciation**

Overland price speaks for itself.

Overland upkeep is low because it gives owners 26 to over 30 miles to the gallon of gas, with exceptionally high oil and tire mileage—\$4.00 a week is the average cost of running this car 100 miles.

Low depreciation is due to the superior quality of materials and workmanship you buy in the car.

WRITE FOR 1922 CATALOGUE



Automotive Accessories and Implement Equipment

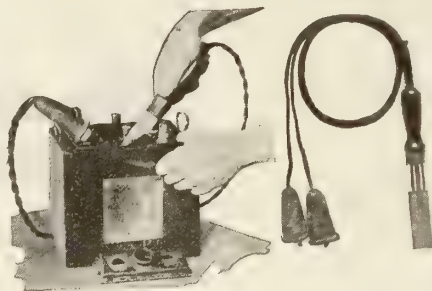


MANLEY PORTABLE HOIST

THIS hoist straddles the complete car and has a variety of uses in the garage. The legs fold together so that when not in use it can be made to occupy small floor space.

It is strongly constructed; the frame is made of steel angles and every part is braced and trussed. The chains always lift vertically, because they may be positioned anywhere between up-rights. It is equipped with two sets of chains so that it is possible to lift from both sides of the car at the same time. The hoist is provided with a friction brake acting on the chain pinion shaft. By reason of this brake it is not necessary when lowering the load to turn the handle backward. The pawl is released and the load lowered by means of the brake.

The lower pulley and hook can be instantly removed to convert the hoisting mechanism into a single chain. The hoist is mounted on four swivel castors with large wheels. It is made by the Manley Manufacturing Company.



Hydrate Electric Hot Knife



TIRE ALARMETER

TWO MOTORING conveniences are incorporated in this device—an indicator for showing air pressure at a glance, and an alarm whistle for giving warning when the pressure in the tire becomes too low.

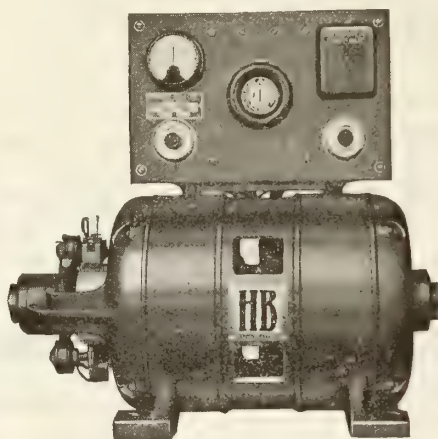
It is substantially made of aluminum and bronze. It locks on the valve stem and is not taken off except when the tire is changed. The dial is mounted on the rim so that it always faces out. The operator determines in advance lowest pressure on which he cares to run his tires, and sets the alarm whistle to go off when pressure goes below that point. The whistle is easily heard in crowded traffic, and continues to sound for 20 seconds. It is made by the K. S. Conrad Company.

CLUTCH SPRING REMOVER

THIS tool fits Chevrolet and other cars with similar clutches. In operation it is hooked over the hub of the clutch and the screw applied to compress the spring. The clutch pin drops out of its own accord. It is made by the Ekern-Turk Mfg. Company.

HYDRATE ELECTRIC HOT KNIFE

THIS IS an electrically heated tool with a special hot blade, designed for removing sealing compound, and for re-sealing storage batteries. It consists of a blade, handle, wire and connections. Insulated clips connect to the poles of a 6-volt-battery. The heating element is made of a special alloy, which, it is said, will not corrode or oxidize when heated in the air. Heavy flexible conductors are attached to the blade and threaded through the handle. The leads are about four feet long incased in gum rubber. At the opposite end they are connected to universal spring clips by which they can be attached to any 6-volt storage battery. It is made by the Service Station Supply.



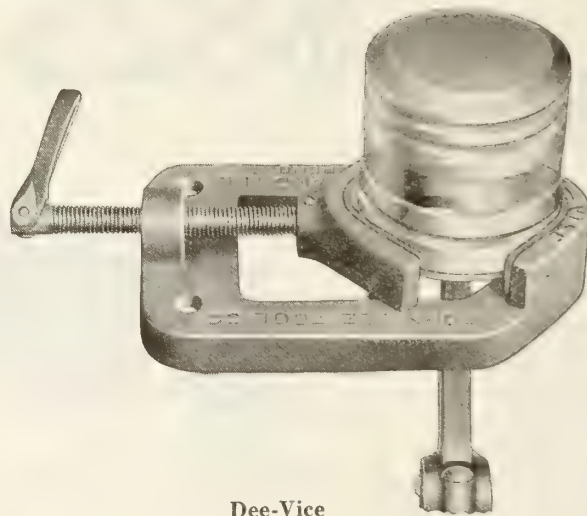
HB 8-Battery Charger



Manley Portable Hoist

UNIVERSAL ARMATURE TESTER

THIS device has been made with a view to giving the electrical station a combination of instruments, namely—a growler, 110 volt test points; meter for measuring the induced current in the armature, and an adjustable commutator contactor for insuring the proper contact while making the milivolt test. It is made by the P. J. Durham Co.



Dee-Vice

ROYAL ELECTRIC AIR PUMP

THE ROYAL electric air pump is carried in the tool box and gets its power from the storage battery. It is simple and light in construction and uses only a small fraction of the battery charge. It is quickly and inexpensively installed and the control is centralized in a single switch button. There are no moving or oiled parts exposed. It is made by Jessop and Thompson.

HB 8-BATTERY CHARGING OUTFIT

THE LATEST addition to the HB line of charging appliances is an 8-battery automatic charger. It is equipped with HB voltage control, automatic cutout, ball-bearings, etc. Its output is 10 amperes and voltage from 6 to 50 volts. The makers are the Hobart Brothers Company.

DEE-VICE

THIS vice can be used to hold armatures or any circle. It will hold any piston from 2½ to 5½ inches. The jaws are lined with brake lining so that pistons, etc., cannot be scratched or injured. New rings can be installed without removing the connecting rod. It is made by the John Dee Tool Company.

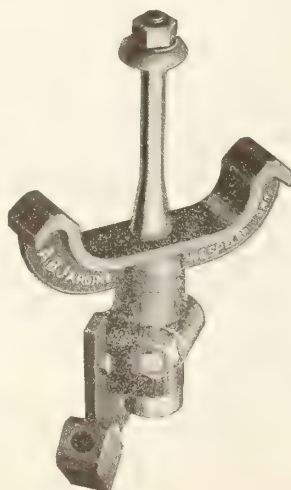
BABY GEAR PULLER AND GENERATOR PRESS

THIS small puller is designed to pull generator gears where the ordinary gear puller is too large and cumbersome. It is made of high grade forged steel and uses a Mac-It screw. It has a depth reach of 3 inches and will pull a gear or bearing up to three inches in diameter.

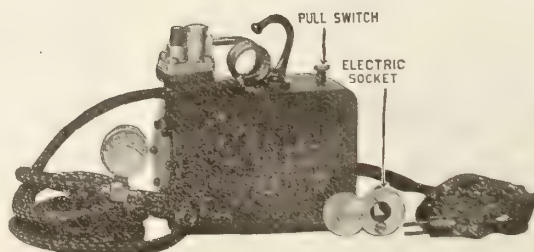
The generator press was designed to press on the Ford generator bearings, but will also take care of a large number of other generator armatures. It is intended, in conjunction with the Baby gear puller, to provide complete equipment for the electrical shops. Distributed by the Peerless Chain Sales Company.

BENCH ENGINE STAND

THIS stand is designed to fit the bench and to hold Ford and Chevrolet engines. It has a positive lock in any position and is rigidly constructed. It is manufactured by A. B. Jardine Co.



Bench Engine Stand



Royal Electric Air Pump



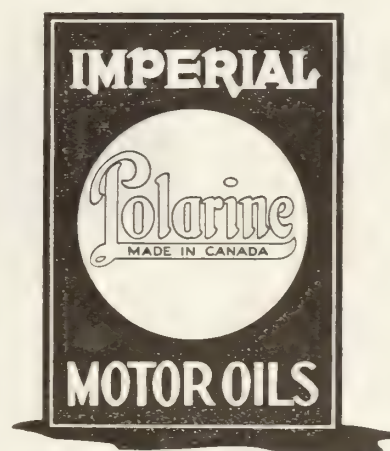
Good Business For You—

Your customers' power farming equipment will give better satisfaction and longer service when lubricated with the proper grades of Imperial Polarine Motor Oils. Our Chart of Recommendations is a sure guide which enables implement dealers to sell oil in the easiest and most profitable way to truck, tractor and automobile owners.

Imperial Farm Lubricants are just as ideally suited to the lubrication of all general types of farm machinery. There are grades particularly adapted to the needs of practically every machine you sell and every tool in use on the modern farm.

Advertising campaigns now running in leading farm papers will augment the demand for Imperial products this season. You can turn this business in your territory **into your business** if you stock the widely-known "Imperial" brands and make your store "Lubrication Headquarters."

Let our salesman tell you about our profitable new dealer agreement.



*The Sign of a
Profitable Oil
Business*

IMPERIAL OIL LIMITED

*Canadian Company Canadian Capital
Canadian Workmen*

T-3162

CUTLER-HAMMER AUTOMATIC GEAR SHIFT

THE GEAR SHIFT DEPARTMENT of the Cutler-Hammer Mfg. Co. has developed a smaller, simpler gear shifting mechanism. No magnetic force or electricity is required—yet all the advantages of pre-selection of speeds by means of a small finger lever on the steering wheel quadrant, are obtained in the same manner as with the magnetic type gear shift made by this company and used on Premier cars.

The shifting mechanism occupies but little space and is mounted on top of the transmission.

This leaves the entire front seat compartment clear as only a portion of the transmission lock shows in front of the gear shift enclosure. With a given speed pre-selected by the finger lever throwing out the clutch is all that is necessary to accomplish the result. Coasting by releasing the clutch pedal part way without shifting is also possible.

The movement of the selector lever through the various linkages moves a pair of roll levers inside the gear-shift casting into the position corresponding to the speed selected. When the clutch pedal is depressed the cams are rotated, one roll lever being moved into the selected gear position and the other held rigidly in the neutral position.

The slip indicates how initial movement of the clutch pedal can take place without moving the operating rod of the shaft. The cam blocks operate by the roll levers. Pushing the clutch pedal forward moves these cams through a limited arc in such a way as to move the roll levers forward and backward.

In reverse position the one roller is opposite the neutralizing cams and the other is held between the upper cams of the blocks which causes the forks to neutralize gears and turn them into reverse. In the neutral position the rollers are held between the neutralizing cams, while in the next position one roller is still between the cams and one between a shifting cam and an overthrow cam.

KEY-KARD AUTO LOCK

THIS LOCK is attached to the windshield and includes a self-controlled ignition switch composed of three separate units, which when assembled, renders the car, the makers claim, theft proof, locking the ignition as well as the hood without the possibility of the owner leaving the key exposed, as in other locks.

The device opens and closes certain electric circuits causing the other units to function. By taking out the Key-Kard identification plate the car is locked and the word "Watched" is exposed.

Should the thief attempt to cut the wires or to destroy the device, the main fuse will be blown and the motor cannot be started until the same is renewed, and to make the required connection on the motor necessary to the hood, which is locked by the Key-Kard lock. There are no tumblers to manipulate in the lock, removing the possibility of its being picked. Made by the Key-Kard Corp.

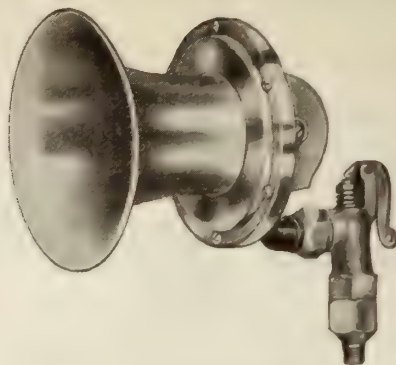
BUELL TURBO HORN

THE BUELL turbo horn is a new type of warning signal utilizing the explosion pressure through the priming-cup opening in cylinder head, using the same valve mechanism as in the Buell explosion whistles and emitting a sound similar to a motor driven electric horn.

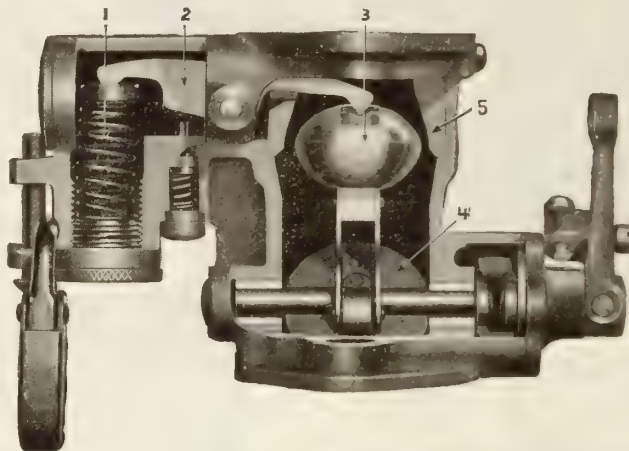
The high pressure gas of the explosion is used to operate a small turbine which carries a cam engaging a diaphragm, as used in the motor-driven electric horn. In other words, it takes its mechanical power direct from the explosion of the cylinder instead of through engine, generator, battery and electric motor. It is made by the Buell Mfg. Co.



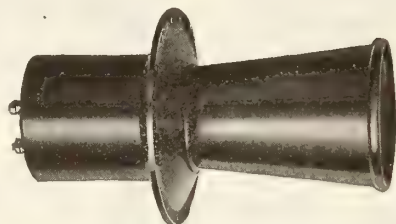
Buell Gas Flow Meter



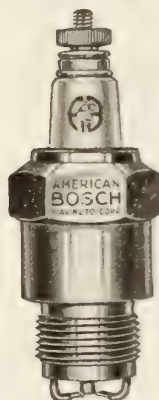
Buell Turbo Horn



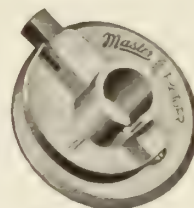
Monarch Governor Model "G"



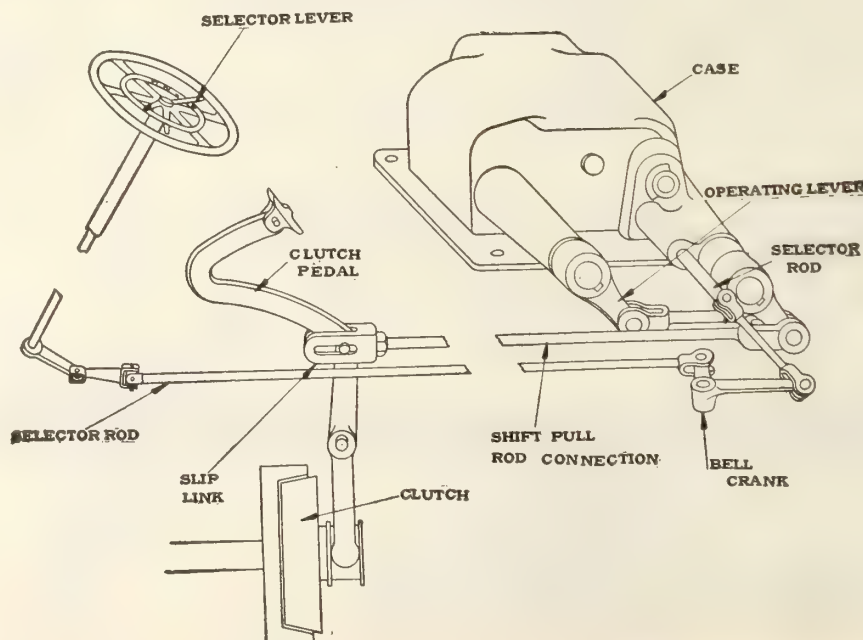
Basco Motor Horn



New Bosch Spark Plug



Master Rotor



Cutler-Hammer Automatic Gear Shift

BUELL GAS FLOW METER

THE BUELL gas flow meter is an instrument attached to the gasoline feed line between the vacuum tank and the carburetor. It shows the rate of consumption of gasoline in gallons per hour. In conjunction with the speedometer reading it shows miles per gallon at different speeds.

If the flow meter readings show a gradual increase in gasoline consumption over a long period of running, the operator knows that the engine efficiency is slowly decreasing.

It is installed by attaching the pipes from the flow meter which is mounted at the dash to the bottom connection on the vacuum tank and to the carburetor line. The flow of gasoline through the flow meter lifts the indicator arm showing the volume in gallons per hour. It is made by the Buell Manufacturing Co.

MASTER ROTOR

THIS ROTOR will fit any make of Fordtype timer shell. It will operate, the makers claim, without the necessity of using oil and by precluding oil along the timer shaft from the contact making surfaces, the objectionable results formerly encountered by reason of the presence of oil within the timer casing are eliminated and proper electrical contact is maintained. All wear is concentrated on the brush. The lubricant is also incorporated in the brush. The holder of the brush is a die casting of hard white metal, designed to hold the brush accurately in place and to prevent oil from getting on the raceway. The spring is leaf type punched from spring bronze. The brush is made of Blendite, composed chiefly of pure copper and graphite. It is designed to be reversible, end for end. It is made by the White Brass Castings Co.

BASCO MOTOR HORN

A NEW development in the line of electric motor driven horns has been placed on the market by the Briggs & Stratton Co., known as the Basco Motor Horn. The motor unit incorporates simplicity of design and small number of parts. Among the features are oilless bearings and a new type of brush holder construction.

The Basco horn is equipped with a very high torque motor which it is claimed insures instant response to the horn button and gives a penetrating warning. External tone adjustment is provided.

STAY-ON AUTOMATIC GASOLINE CAP

THE BASCO Devices Co., have just put on the market a new gasoline filling cap under the trade name of Stay-On. It works automatically, having a hinged safety valve seating arrangement, which it is said, prevents leaking or splashing.

When filling the tank after the nozzle is withdrawn the cap automatically closes. It is made to fit Fords and Chevrolets and other makes of cars.

MONARCH GOVERNOR MODEL "G"

THE Monarch Governor Co., recently placed on the market a new addition to their line of governors. The new governor is known as Model G. It has only two moving parts and is completely automatic in action, making unnecessary a mechanical drive of any kind. It is simple in design and characterized by substantial construction.

NEW BOSCH SPARK PLUG

FOUR new types of spark plugs have been added by the American Bosch Magneto Corporation to the three already made. Complete line consists of 7/8 large hex, 7/8 S.A.E. hex, 7/8 long with large hex, 7/8 extra long with large hex, 7/8 long with S.A.E. hex, 1/2-in. pipe with 18 mm. metric.

GRAIN GROWERS LOSE HEAVILY
ON SHIPMENTS

WHATEVER the complaints of the farmers in Western Canada about the prices charged for their agriculture implements, the experience of the United Grain Growers, Ltd., would not seem to indicate that there is much profiteering on the part of the implement houses. As a matter of cold fact the statement of profit and loss for the year ending August 31 shows that there was a net loss last year of \$282,302, a loss in the previous year of \$52,069 and the year before that a loss of \$59,426. And these losses totalling nearly \$394,000 in three years resulted from a turnover in business totalling about \$18,500,000. Following is a summary of the business as presented to the shareholders of the United Grain Growers, by the general manager C. Rice-Jones.

FARM MACHINERY AND SUPPLIES
Comparative Turnover and Results

Grand Total Sales . . .	\$6,180,359	\$6,908,896	\$4,676,918
Gross Revenue . . .	\$718,006	\$781,350	\$428,961
Less Discount and commission allowed . . .	38,688	96,030	116,109
Net Revenue . . .	\$679,318	\$685,319	\$312,852
Operating Expenses . . .	\$68,168	\$649,817	\$514,802
Constant Expenses . . .	70,575	87,570	80,352
Total Expenses . . .	\$738,744	\$737,388	\$595,155
Net Profit or Loss . . .	(\$59,426) Loss	(\$52,069) Loss	(\$282,302) Loss

It will be noted that there is a considerable falling off in business indicated, from nearly \$7,000,000 to something over \$4,500,000. However, this would not alone account for the big losses last year; heavy depreciation on stocks had to be faced. It is explained to the shareholders that as the prices depreciated from time to time during the year the losses were merely absorbed in the turnover, no special write-down in the inventory being made during the year. Reductions in prices occurred at irregular intervals and on different commodities at different times so there is no means of knowing exactly how much of the loss was due to depreciation in value of stock. Further a policy of cutting prices on farm machinery was followed in an effort to bring down prices. Estimating an average loss of 10 per cent. on the stock on hand at the beginning of the year this depreciation alone should have amounted to \$158,000.

Should Have Marked Prices Up

It was admitted by the management that the company's losses are due in part to the fact that they did not take what is now acknowledged to be the proper course in marking up prices during the period of rapid increase during the war. All stocks, it is admitted, should have been marked up as the prices went up irrespective of what the goods cost and the profits taken and set aside to care for these losses when the prices came down.

At the same time it is emphasized that the company has refused to give orders for replacements at prices which the manufacturers are asking. It is regarded as a better policy to take losses through not having goods to fill orders rather than to pay prices which "are altogether out of line with the price of farm produce." This policy means that in the near future orders for certain lines of machinery cannot be filled and unless conditions change materially in the course of the next year or so stocks of tillage tools and some other lines which have been purchased in the past will be exhausted. In concluding this chapter of his report general manager C. Rice-Jones says that the prospects are that the results on farm machinery and supplies cannot be ex-

pected to be materially if any better in the current year than in the last.

The profit and loss account for all departments shows earnings of \$233,743 compared with \$459,281 in the previous year. Dividends, grants, reserves for contingencies, etc., took \$233,894, which is slightly more than the net profits, but in addition provision had to be made for government taxes estimated at \$14,887 which further reduced the balance of \$108,125.

GILSON MFG. CO. BRING OUT
NEW GARDEN TRACTOR

THE GILSON MFG. CO., Port Washington, Wis., recently put on the market a new type of garden tractor, known as the Boden Power Hoe. It has a unique tool control and a high arch for clearance.

The tractor is guided by handles which are offset enabling the operator to walk between the rows instead of straddling them. The height from the ground to the top of the arch is



Gilson Garden Tractor

14 inches, so that the tractor will work astride the row without damage to growing plants. The point of pull is from the front of the tractor, so that it can be said the machine pushes the tools. It is 18 in. from the pivot to the tool and the point of pull is 9 in. ahead of the driver.

The engine is the well known "Goes Like Sixty" model, which the company has been making for several years. It is 4-cycle, 1-cylinder, 2½ x 2½, air cooled, and has a speed range of from 800 to 1200 r.p.m. While the tractor has but one speed, it can be throttled to a range of ¼ to 1½ m.p.h. A set-jet carburetor is used, and ignition is from a set-spark magneto, built in the flywheel. The initial drive from the engine to the countershaft is by a round belt. The drive pulley on the engine is on the camshaft so that the pulley runs at one-eighth the engine speed. There is no reduction in the belt drive. The belt is V-round, rubberized canvas belt, made by the Durkee-Atwood Co. The tendency of the belt is to assume the shape of a circle. The pulley rims are V-shaped. Between the pulleys is a belt tightener pulley, controlled by a short lever on the right handle, which also acts as a clutch.

The cold rolled countershaft, running in cast iron bearings, has sprockets at either end, the final drive to the drive wheels being link and pin Whitney chain. The final reduction is 5 to 1. The differential is supplanted by an ingenious arrangement. The driven pulley is a split-sheave wheel, the two halves being held together by spring action. One half is keyed to the countershaft, while the other is bolted direct to the right sprocket. Travelling straight ahead, the two halves pull together. When a corner is turned as one drive wheel must travel faster than the other, one half passes the other, allowing a variation in the speeds of the drivers. At the same time, however, there is a full pull on the pulley by the belt.

The 16-in. drive wheels, 3-in. wide are mounted on stub axles, pressed in place in the high arch casting, which

has a clearance of 14 in. To this casting are bolted the engine and other parts, and it also contains the countershaft bearings. The tractor is supported at the rear by two cast truck wheels. The brackets holding the axles for these wheels are bolted to the rear of the steel drawbar. These rear wheels which also act as depth gage wheels are adjustable vertically, and run rigid with the tools.

Attached to each of the carrying frames and at the driver's right is a handle with which the shovels are guided past the plants. The handle to the left is rigid to the tractor and is the guiding handle. The short throttle lever is on the left handle and is connected to the carburetor throttle by a Boden wire. The Power Hoe, is designed for use with all types of cultivating tools, either for one, two or three rows. With a lawn mower, the mower is pushed ahead. The mower is attached with a snap hitch, requiring no wrench. The tractor can be used with most garden tools of standard makes.

G. BERGERON ELECTED
PRESIDENT MONTREAL
AUTO TRADE ASSOCIATION

MUCH ENTHUSIASM marked the annual meeting of the Montreal Automobile Trade Association, Ltd., held at the Windsor Hotel, Montreal, March 31.

The importance of association work was emphasized through the résumé by C. S. Hoben, retiring president of the activities during the past year. Particularly beneficial, it was shown, had proved the work of the different subsections of the organization.

Among the matters of a legislative nature taken up during the year was the restriction proposed by the civic authorities on the sale of gasoline. With the co-operation of the Retail Merchants Association, the automobile trade body succeeded in bringing to a halt the action of the city which would have been inimical to all interests connected with the automobile business.

The social features of association work were not neglected during 1921. Two get-together dinners were held at which all persons connected with the trade in the Montreal district were invited. These events were pronounced successes and proved of great benefit to the persons attending.

The open house show week, to take the place of the regular automobile show under the auspices of the association, proved so successful that it was continued for another week. At the annual meeting, the question of holding automobile shows, including a used car show, fall show for enclosed cars and the annual general motor show was discussed and was referred to the incoming board of directors which will consider the advisability of holding all or any of them.

The following officers were elected:

President, George Bergeron, manager of the Dominion Rubber System, (Quebec), Ltd.; vice-president, A. M. Jacques, vice-president and managing director of the Montreal Motor Sales, Ltd., distributor for the Dodge Brothers cars in the Montreal district; treasurer, R. G. Gilbride, general manager of the Packard Montreal Motor Co. and vice-president of the Allied Motors, Ltd., distributor of the Paige and Jewett cars; secretary, L. M. Hart, branch manager for the White Co., Montreal branch.

These officers with the following constitute the board of directors: C. S. Hoben, manager for Eastern Canada of the Ford Motor Co. of Canada; Florian Leduc, manager of the Montreal branch of the Willys-Overland Co., and J. O. Linteau, general manager of the Legare Automobile & Supply Co., distributor for the Province of Quebec for Hudson, Essex, Franklin, Chevrolet and Nash cars and Nash and Republic trucks.

NEW AUTO PLANT FOR ST.
THOMAS

WOOD Gorrie Motors Limited, a recently incorporated company, formed for the manufacturing of the Warwick Light Six in four models, has selected St. Thomas for the location of its plant and has engaged temporary assembling quarters in a section of the factory building occupied by St. Thomas Boxes Limited.

Negotiations are under way for the purchase of a 25-acre site to the east of the city in the newly-acquired industrial area. W. B. Wood of Toronto is president of the company, A. J. Gorrie of Montreal, former general superintendent of Canadian Northern Lines in Quebec, is vice-president; C.R. Col-lard of Toronto, secretary-treasurer, and W. H. Smith of Toronto chief engineer and designer.

PRODUCTION INCREASED

Detroit, March 20—The Wills Sainte Claire Co. has issued a statement declaring it has contracts for 7,200 cars with distributors for 1922 delivery. February production of 15 daily has been increased to 20 daily for March. Six hundred men are now employed at the Marysville plant.

WILL REGULATE MOTOR BUSES
IN ONTARIO

AT A RECENT sitting of the Ontario Legislature the Hon. F. C. Biggs, Minister of Public Works and Highways, laid before the House his promised legislation to regulate motor bus operations on public highways, Monday. The bill conforms closely to early explanations, gives the Highways Department wide power in regulating the number of motor busses on the highways, in requiring them to operate on fixed schedules, and in safeguarding the public by insisting upon a proper type of vehicle.

While the bill gives the department the right to give exclusive franchise rights, the Minister intimated that that was not the intention.

"The intention is to protect the operating companies in their investment," he said, "and by protecting them, encourage them—yes, practically force them—to give a regular and proper service to the people."

The Minister pointed out that at present, while there were numbers of motor busses operating with a considerable capital investment, the public was not getting the service it should, since it was practically impossible for a company to operate on schedule. The moment one announced a schedule, another opponent would run a bus in a minute or two ahead and pick up all the waiting passengers. A recent accident on the Toronto-Hamilton Highway, he said, had been largely due to this racing for passengers.

The bill, he explained, would give the department power to require a certain type of bus. Some of those now operating were fire-traps—busses where the passengers had to crawl in past the engine.

At Sulphur Springs:—Restaurant Proprietor—We have calves' brains, mum.

Old Lady—I'm so sorry. I have rheumatism.—Life.

Specifications of Cars Sold in Canada

Owing to Exchange Fluctuations and Different Quotations at Different Points in Canada
Prices Have Been Omitted From This Table

NAME AND MODEL	Wheel-base	Engine Make	Cylinders Bore and Stroke	Radiator	Lubrication	Carburetor	Starting and Lighting	Ignition	Battery	CLUTCH		Brake-lining	Tires
										Type	Make		
Auburn 6-51	121	Cont.	6-3 1/4 x 4 1/2		Force Feed	Rayfield	Remy	Remy	Exide	d-disk	B. & B.		32x4
Cadillac 61	132	Own.	8-3 1/4 x 5 1/4	Own.	Force Feed	Own.	Delco.	Delco.	Exide.	d-disk	Own.	Pneumatic and Hydraulic	32x4
Case X	122	Cont.	6-3 1/4 x 4 1/2			Rayfield	Bijur	Delco.	Willard	d-disk	Own.		32x4
Chalmers 35-C	117	Own.	6-3 1/4 x 4 1/2		Cir. Splash	Stromberg	Auto-Lite	Remy	Prest-o-Lite	disk	Own.		32x4
Chalmers 35-C	122	Own.	6-3 1/4 x 4 1/2		Cir. Splash	Stromberg	Auto-Lite	Remy	Prest-o-Lite	disk	Own.		32x4
Chandler Six	123	Own.	6-3 1/2 x 5	Cellular	Cir. Splash	Rayfield	Bosch	Bosch	plate	plate	B. & B.		32x4
Chevrolet 490	102	Own.	4-3 11/16 x 4		Cir. Splash	Zenith	Auto-Lite	Remy	Willard	cone	Own.		32x4
Chevrolet FB	110	Own.	4-3 11/16 x 5 1/4		Cir. Splash	Zenith	Auto-Lite	Remy	Willard	cone	Own.		32x4
Cleveland 40	112	Own.	6-3 x 4 1/2		Cir. Splash	Stromberg	Bosch	Bosch	Prest-o-Lite	plate	B. & B.		32x4
Cole 890	127 1/2	Northway	8-3 1/2 x 4 1/2	McCord	Cir. Splash	Johnson	Delco.	Delco.	Willard	cone	Northway	Thermoid	33x5
Columbia Challenger 6	115	Rutenberg	6-3 1/2 x 5		Cir. Splash	Stromberg	Auto-Lite	A. K.	Prest-o-Lite	disk	B. & B.		32x4
Columbia CC	115	Cont.	6-3 1/4 x 4 1/2		Cir. Splash	Stromberg	Auto-Lite	A. K.	Prest-o-Lite	d-disk	B. & B.		32x4
Dodge Brothers	114	Own.	4-3 7/8 x 4 1/2	McCord	Cir. Splash	Stewart	North East	North East	Willard	d-disk	Own.		32x4
Durant A22	109	Own.	4-3 7/8 x 4 1/2		Cir. Splash	Tillotson	Auto-Lite	Auto-Lite	U. S. L.	plate	Own.		32x4
Durant B22	123	Own.	6-3 1/4 x 4 1/2										
Earl 40	112	Own.	4-3 7/16 x 5 1/4	Sparton	Cir. Splash	Scoe	Auto-Lite	Connecticut	U. S. L.	d-disk	B. & B.		32x4
Essex 108 1/2	108 1/2	Own.	4-3 3/8 x 5		Cir. Splash	Own.	Bosch	Bosch	Exide	o-disk	Own.		32x4
Ford T	100	Own.	4-3 3/4 x 4		Cir. Splash	Holley	Own	Own	Exide	o-disk	Own.		32x4
Franklin 9-B	115	Own.	6-3 1/4 x 4		Pressure	Own.	North East	A. K.	Willard	plate	B. & B.	Thermoid	32x4
Gardner T-R. & G.	112	Lycoming	4-3 1/2 x 5	Fedders	Splash	Carter	West.	West.	Willard	plate	B. & B.	Thermoid	32x4
Gray-Dort 18-14	108	D-Ly.	4-3 1/2 x 5		Cir. Splash	Carter	Bosch	Connecticut	U. S. L.	d-disk	Detlofz.		31x4
Haynes 75	132	Own.	6-3 1/2 x 5 3/16	Fedders	Pressure	Stromberg	Leech-Neville	Kingston	Willard	d-disk	B. & B.	Thermoid	34x4
Haynes 55	121	Own.	6-3 1/2 x 5	Fedders	Cir. Splash	Rayfield	Leech-Neville	Kingston	Willard	d-disk	B. & B.	Thermoid	33x4
Haynes 48	132	Own.	12-2 1/4 x 5	Fedders	Pressure	Rayfield		Delco.	Willard				
Hudson Super Six	126	Own.	6-3 1/2 x 5		Cir. Splash	Own.	Bosch	Bosch	Exide	o-disk	Own.		34x4
Hupmobile Series R	112	Own.	4-3 1/4 x 5 1/2	McCord	Force Feed	Stromberg	West.	A. K.	Willard	d-disk	Own.		32x4
Jordan MX	120	Own.	6-3 5/16 x 4 1/4		Force Feed	Stromberg	Delco.	Delco.	Willard	plate	Detroit		32x4
Jordan F	127	Cont.	6-3 1/2 x 5 1/4		Force Feed	Stromberg	Delco.	Delco.	Willard	plate	Detroit	Thermoid	32x4 1/2
Kissel 45	124	Own.	6-3 5/16 x 5 1/4	Sparton	Cir. S.	Stromberg	Remy	Remy	Willard	d-disk	Warner		32x4 1/2
Lexington ST-22	122	Ansted	6-3 1/4 x 4 1/2		Force Feed	Rayfield	G. & D.	Connecticut	Willard	d-disk	Ansted		32x4
Lexington T-2	128	Ansted	6-3 1/4 x 4 1/2		Force Feed	Rayfield	G. & D.	Connecticut	Willard	disk	Ansted	Thermoid	32x4
Liberty 10-C	117	Own.	6-3 1/2 x 5		Force Feed	Stromberg	Wagner	Wagner	Prest-o-Lite	d-disk	B. & B.		32x4
Lincoln 130	130	Own.	8-3 3/8 x 5	McCord	Force Feed	Stromberg	Delco.	Delco.	Exide	d-disk	Own.	Raybestos	33x5
Marmon 34	136	Own.	6-3 1/4 x 5 1/8	Own.	Force Feed	Stromberg	Delco.	Delco.	Willard	d-disk	Own.		32x4
Maxwell 109	109	Own.	4-3 3/8 x 4 1/2		Cir. Splash	Eagle	Auto-Lite	Simms	Prest-o-Lite	cone	Own.	Raybestos	31x4
Moon 6-48	122	Cont.	6-3 1/4 x 4 1/2	Fedders	Force Feed	Rayfield	Delco.	Delco.	Exide	d-disk	B. & B.	Raybestos	32x4
Moon 6-75	135	Cont.	6-3 3/8 x 5 1/4		Force Feed	Rayfield	Delco.	Delco.	Exide	d-disk	B. & B.		32x4
McLaughlin 1922-34-35-36-37	109	Own.	4-3 3/8 x 4 1/2		Cir. Splash	Marvel	Delco.	Delco.	Exide	d-disk	Own.		34x4
McLaughlin 1922-45-6-7	118	Own.	6-3 3/8 x 4 1/2		Cir. Splash	Marvel	Delco.	Delco.	Exide	d-disk	Own.		32x4
McLaughlin 1922-47-9-50	124	Own.	6-3 3/8 x 4 1/2		Cir. Splash	Marvel	Delco.	Delco.	Exide	d-disk	Own.		34x4 1/2
Nash 691	121	Own.	6-3 1/4 x 5	Long	Spl. & F. feed	Marvel		Delco.	Willard	plate	B. & B.		34x4
Nash 682	127	Own.	6-3 1/4 x 5			Marvel							
Nash Four 41-4	112	Own.	4-3 3/8 x 5			Schebler				plate	B. & B.		
Oldsmobile 43-A	115	Own.	4-3 11/16 x 5 1/4		Force Feed	Zenith	Auto-Lite	Remy	Willard	d-disk	B. & B.		32x4
Oldsmobile 46	122	Own.	8-2 7/8 x 4 1/4		Force Feed	B. & B.	Delco.	Delco.	Willard	cone			32x4
Oldsmobile 47	115	Own.	8-2 7/8 x 4 1/4		Force Feed	Johnson	Delco.	Delco.	Willard	d-disk			32x4
Overland 4	100	Own.	4-3 3/8 x 4		Cir. Splash	Tillotson	Auto-Lite	Connecticut	Prest-o-Lite	plate			30x3 1/2
Packard Single Six	116	Own.	6-3 1/8 x 4 1/2		Force Feed	Own.	A. K.	Delco.	Willard	d-disk	Own.		32x4
Packard Twin Six	136	Own.	12-3 x 5		Force Feed	Own.	Bijur	Delco.	Willard	d-disk	Own.		35x5
Paige 6-44	119	Own.	6-3 1/4 x 5		Cir. Splash	Stromberg	Remy	A. K.	Willard	plate	B. & B.		32x4
Paige 6-66	131	Cont.	6-3 3/4 x 5		Force Feed	Rayfield	Remy	A. K.	Willard	plate	B. & B.		32x4
Pierce-Arrow	138	Own.	6-4 x 5 1/2	Own.	Force Feed	Own.	Delco.	Delco.	Willard	d-disk	Own.	Multi-plate	32x4
Premier 6-D	126 1/4	Own.	6-3 3/8 x 5 1/2	McCord	Force Feed	Johnson	Delco.	Delco.	Willard	d-disk	B. & B.	Raybestos	32x4
Reo T-6-B	120	Own.	6-3 3/16 x 5	Own.		Rayfield	North East		Willard	d-disk	Own.		32x4
Roamer 6-54-E	128	Cont.	6-3 1/2 x 5 1/4	Hayes		Stromberg	Bijur	Bosch	Columbia	plate	B. & B.	Raybestos	32x4
Roamer 4-75-E	128	Dues.	4-4 1/4 x 6	Hayes									32x4 1/2
Rolls-Royce 143 1/2	143 1/2	Own.	6-4 1/2 x 4 1/4	Own.	Force Feed	Own.	Bijur	Own.	Exide	cone	Own.		33x5
Saxon 125	112	Gray	4-3 1/2 x 5			Stromberg	Wagner	Wagner	Prest-o-Lite	d-disk	Detlof		32x4
Stephens 90	122	Own.	4-3 1/4 x 4 1/2		Force Feed	Tillotson	Auto-Lite	Connecticut	U. S. L.	d-disk	B. & B.		32x4
Studebaker Light Six	112	Own.	6-3 1/8 x 4 1/2		Cir. Splash	Stromberg				d-disk	Own.		32x4
Studebaker Special Six	119	Own.	6-3 1/2 x 5		Cir. Splash	Stromberg	Wagner	Wagner		plate	Own.		32x4
Studebaker Big Six	126	Own.	6-3 1/2 x 5		Cir. Splash	B. & B.	Wagner	Wagner		plate	Own.		33x4 1/2
Velle 58	115	Own.	6-3 1/4 x 4 1/2		Force Feed	Stromberg	Bijur	A. K.	Willard	plate	Dooley	Raybestos	32x4
Velle 48	115	Cont.	6-3 1/4 x 4 1/2		Force Feed								32x4
Velle 34	112	Falls	6-3 1/8 x 4 1/2		Force Feed								32x4
Westcott A-44	120	Cont.	6-3 1/4 x 4 1/2		Force Feed		Delco.	Delco.	Willard	plate	B. & B.		32x4
Westcott C-48	125	Cont.	6-3 1/2 x 5 1/4			Rayfield	Delco.	Delco.		plate	Warner		32x4 1/2
Westcott C-38	118	Cont.	6-3 1/4 x 4 1/2			Rayfield	Delco.	Delco.		plate	B. & B.		32x4
Willys-Knight 20	118	Own.	4-3 3/8 x 4 1/2	Own.	Cir. Splash	Tillotson	Auto-Lite	Connecticut	U. S. L.	plate	Own.		32x4

ENGINE MAKE: Cont., Continental; Dues., Duesenberg. LUBRICATION: Cir. Splash, circulating splash. STARTING AND LIGHTING: A. K., Atwater Kent; G. & D., Gray & Davis; West, Westinghouse. IGNITION: A.K., Atwater-Kent; West, Westinghouse. CLUTCH TYPE: d-disk, dry-disk. CLUTCH MAKE: B.&B., Borg & Beck.

OILPULL TRACTORS



Every Dealer Should Read this FREE Book

The 4 VITAL FACTORS of Cheapest Tractor Power

- 1. LOWEST FUEL COST
- 2. LOWEST UPKEEP EXPENSE
- 3. LONGEST AVERAGE LIFE
- 4. REASONABLE PRICE

Why the OilPull Finds a Ready Market

In the Rumely OilPull Tractor are many things the farmer wants. Once he knows them and realizes their importance he is not hard to sell. And it is easy to convince him. Cheapest power is one thing he wants. He gets it in the Rumely OilPull because it combines the Four Vital Factors necessary to produce cheapest power. These are: (1) Lowest Fuel Cost. (2) Lowest Upkeep Expense. (3) Longest Average Life (10 years and more).

(4) Reasonable First Cost. These records are due largely to

Triple Heat Control

—a perfected system of oil-burning found only on the Rumely OilPull. Controls motor temperatures. Positively solves the problem of getting the power out of cheap kerosene under any conditions. No overheating. No freezing. Booklet shown above fully discusses this wonderful system. It is *free*. Write for a copy and read it.

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The Advance-Rumely line includes kerosene tractors, steam engines, grain and rice threshers, alfalfa and clover hullers, husker shredders and farm trucks
Served through 30 Branches and Warehouses

ADVANCE-RUMELY

Specifications of Trucks Sold in Canada

NAME AND MODEL	Tons Capacity	Engine	Bore and Stroke	Radiator	Carburetor	Governor	Ignition	Battery	Brake Lining	Final Drive	Tires	
											Front	Rear
Commerce T	1-1 1/4	Continental	3 3/4 x 5		Zenith		Eiseman	Willard		B	34x4 1/2	34x4 1/2
Commerce 12	1 1/2	Continental	3 3/4 x 5		Zenith		Eiseman	Willard		I	35x5 1/2	35x5 1/2
Commerce 16	2	Continental	3 3/4 x 5		Zenith		Eiseman	Willard		I	35x5 1/2	35x5 1/2
Commerce 18	2 1/2	Continental	4 1/2 x 5 1/4		Zenith		Eiseman	Willard		I	36x6 1/2	36x6 1/2
Chevrolet G	3/4	Own	3 11/16 x 4		Zenith		Remy			St	31x4 1/2	34x4 1/2
Chevrolet T	1	Own	3 11/16 x 5 1/4		Zenith		Remy			W	33x4 1/2	33x5 1/2
Chevrolet Light Delivery		Own	3 11/16 x 4		Zenith		Remy				30x3 1/2	30x3 1/2
Denby 31	3/4-1 1/4	Continental	3 3/4 x 5	Long	Stromberg	Monarch	Eiseman	Willard		B	35x5 1/2	35x5 1/2
Denby 33	1 1/4	Continental	3 3/4 x 5	Long	Stromberg	Monarch	Eiseman	Willard		I	35x5 1/2	35x5 1/2
Denby 34	2	Continental	3 3/4 x 5	Long	Stromberg	Monarch	Eiseman			I	36x3 1/2	36x6
Denby 25	3	Continental	4 1/2 x 5 1/4	Long	Stromberg	Monarch	Eiseman			I	36x4	36x7
Denby 27	4	Continental	4 1/2 x 5 1/4	Long	Stromberg	Duplex	Eiseman			I	36x5	36x5d
Denby 210	5	Continental	4 1/2 x 5 1/4	Long	Stromberg	Duplex	Eiseman			I	36x6	40x6d
Denby 214	7	Continental	5x6	Long	Stromberg	Duplex	Eiseman			I	36x6	40x14
Diamond T O-3	1-1 1/4	Hink	3 3/4 x 5 1/4	G and O	Stromberg	Special	Bosch			W	36x3 1/2	36x4
Diamond T T	1 1/4	Hink	3 3/4 x 5 1/4	G and O	Stromberg	Special	Bosch			W	36x3 1/2	36x5
Diamond T FS	1 1/4	Hink	3 3/4 x 5 1/4	G and O	Stromberg	Special	Bosch			W	36x3 1/2	36x5
Diamond T U	2	Hink	4x5 1/4	G and O	Stromberg	Special	Bosch			W	36x4	37x7
Diamond T K	3 1/2	Hink	4 1/2 x 5 1/4	G and O	Stromberg	Special	Bosch			W	36x4 1/2	36x5d
Diamond T EL	5	Hink	4 1/2 x 5 1/4	G and O	Stromberg	Special	Bosch			W	36x6	40x6d
Diamond T S	5	Lib B	4 1/2 x 6	G and O	Stromberg	Special	Bosch			W	36x6	40x6d
Ford TT	1	Own	3 3/4 x 4		Hceley		Own	Exide		W	30x3 1/2	32x4 1/2**
F. W. D. B.	3	Wisconsin	4 1/2 x 5 1/4		Stromberg	Pierce	Eiseman		Raybestos	B	36x6	36x6
Federal 1	1	Continental	3 3/4 x 5	Own	Zenith	Pharo	Eiseman		Raybestos	W	36x5 1/2	36x6 1/2
Federal 1 1/2	1 1/2	Continental	4 1/2 x 5 1/4	Own	Zenith		Eiseman	None	Raybestos	W	36x3 1/2	36x5
Federal 2	2	Continental	4 1/2 x 5 1/4	Own	Zenith		Eiseman	None	Raybestos	W	36x4	36x7
Federal 3 1/2	3 1/2	Continental	4 1/2 x 5 1/4	Own	Zenith		Eiseman	None	Raybestos	W	36x5	36x8d
Federal 5-6	5-6	Continental	4 1/2 x 6	Own	Zenith		Eiseman		Raybestos	W	36x6	40x6d
G and J 20	1	Buda	3 3/4 x 5 1/4		Zenith		Bosch	Bosch		W	34x5 1/2	34x5 1/2
G and J A	2 1/2	Hink	4x5 1/4		Stromberg		Bosch			W	36x4	36x7
G and J A	4	Hink	4 1/2 x 5 1/4		Stromberg		Bosch			W	36x5	36x10
Gary F	1 1/4	Buda W U ?	3 3/4 x 5		Master	Pierce	Eiseman		Raybestos	W	36x3 1/2	36x4
Gary J	1 1/4	Buda I U	4x4 1/2		Master	McCanna	Eiseman		Raybestos	W	36x3 1/2	36x5
Gary Bus	1	Buda H U	4 1/2 x 5 1/4		Master		Eiseman	Vesta	Raybestos	W	35x5 1/2	36x7 1/2
Gary J	2 1/2	Buda H T U	4 1/2 x 5 1/4		Master	McCanna	Eiseman		Raybestos	W	36x4	36x7
Gary K	3 1/2	Buda Y T U	4 1/2 x 6		Master	McCanna	Eiseman		Raybestos	W	36x5	40x5d
Gary M	5	Buda B T U	5x6 1/2		Master	McCanna	Eiseman		Raybestos	W	36x6	40x6d
G. M. C. K16	1	Own	3 3/4 x 5	Own		Own	Eiseman	Willard	Raybestos	B	34x5 1/2	34x5 1/2
G. M. C. K41A	2	Own	4x5 1/4	Own		Own	Eiseman	Willard	Raybestos	W	36x4	36x7
G. M. C. K41B	2	Own	4x5 1/4	Own		Own	Eiseman	Willard	Raybestos	W	36x6 1/2	40x8 1/2
G. M. C. K71A	3 1/2	Own	4 1/2 x 6	Own		Own	Eiseman	Willard	Raybestos	W	36x5	40x5d
G. M. C. K71B	3 1/2	Own	4 1/2 x 6	Own		Own	Eiseman	Willard	Raybestos	W	38x7 1/2	44x10 1/2
G. M. C. K101A	5	Own	4 1/2 x 6	Own		Own	Eiseman	Willard	Raybestos	W	36x5	40x6
Garford 15	3/4		3 3/4 x 5 1/4							W	34x5 1/2	34x5 1/2
Garford 25	1 1/4		3 3/4 x 5 1/4							W	36x3 1/2	36x4
Garford 70H	2		4 1/2 x 5 1/4							W	36x4	36x7
Garford 77D	3 1/2		4 1/2 x 6							W	36x5	36x8d
Garford 68D	5		5x6 1/2							W	36x6	40x6d
Garford 150A	7 1/2		5x6 1/2							C	36x6	40x7d
International S	3/4	Own	3 3/4 x 5		Ensign				Thermoid	I	34x5 1/2	34x5 1/2
International 21	1	Own	3 3/4 x 5 1/4		Ensign				Thermoid	I	36x3 1/2	36x4 1/2
International 31	1 1/4	Own	3 3/4 x 5 1/4		Ensign				Thermoid	I	36x3 1/2	36x4
International 41	2	Own	3 3/4 x 5 1/4		Ensign				Thermoid	I	36x3 1/2	36x4
International 61	3	Own	4 1/2 x 5		Ensign				Thermoid	I	36x4	36x6
International 101	5	Own	4 1/2 x 5		Ensign				Thermoid	I	36x5	40x10
Maccar 1 1/2	1 1/2	Continental	4 1/2 x 5 1/4			Mueller	Eiseman	Prest-o-Lite		W	36x4	36x6
Maccar HA	2	Continental	4 1/2 x 5 1/4			Mueller	Eiseman	Prest-o-Lite		W	36x4	36x4d
Maccar H-2	3	Continental	4 1/2 x 5 1/4			Mueller	Eiseman	Prest-o-Lite		W	36x4	36x5d
Maccar M-2	4	Wisconsin	4 1/2 x 6			Mueller	Eiseman	Prest-o-Lite		W	36x5	36x6d
Maccar 5	5	Continental	4 1/2 x 6			Mueller	Eiseman	Prest-o-Lite		W	36x5	40x6d
Mack ABDR	1 1/2	Own	4x5	Own	Shebler	Own			Multibestos	D	36x4	36x7 1/2d
Mack AB	2 1/2	Own	4x5	Own	Shebler	Own			Multibestos	C	36x4	36x4d
Mack A B Chain	1 1/2	Own	4x5	Own	Shebler	Own			Multibestos	C	36x4	36x5 1/2d
Mack A B D R	2	Own	4x5	Own	Shebler	Own			Multibestos	C	36x4	36x4d
Mack A C Chain	3 1/2	Own	5x6	Own	Shebler	Own			Multibestos	C	36x5	40x5d
Mack A C Chain	5	Own	5x6	Own	Shebler	Own			Multibestos	C	36x6	40x6d
Mack A C Chain	6 1/2	Own	5x6	Own	Shebler	Own			Multibestos	C	36x6	40x12
Mack A C Chain	7 1/2	Own	5x6	Own	Shebler	Own			Multibestos	C	36x7	40x7
Mack Trac AB	5	Own	4x5	Own	Shebler	Own			Multibestos	C	36x4	36x4
Mack Trac AC	7	Own	5x6	Own	Shebler	Own			Multibestos	C	36x5	40x5d
Mack Trac AC	10	Own	5x6	Own	Shebler	Own			Multibestos	C	36x6	40x6d
Mack Trac AC	13	Own	5x6	Own	Shebler	Own			Multibestos	C	36x6	40x12
Mack Trac AC	15	Own	5x6	Own	Shebler	Own			Multibestos	C	36x7	40x7d
Mapleleaf AA	2	Own	4x5 1/4							W	34x4	36x6
Mapleleaf BB	3	Own	4 1/2 x 5 1/4							W	36x4	36x4d
Mapleleaf CC	4	Own	4 1/2 x 5 1/4							W	36x5	36x5d
Mapleleaf DD	5	Own	4 1/2 x 5 1/4							W	36x6	40x6d
Nash 2018	1	Own	3 3/4 x 5 1/4		Stromberg	Simplex	Eiseman	Willard		I	34x3	34x4
Nash 3018	2	Own	3 3/4 x 5 1/4		Stromberg	Simplex	Eiseman	Willard		I	34x4	34x6
Nash Quad	2	Buda	4 1/2 x 5 1/4		Stromberg	Simplex	Eiseman			I	36x5	36x5
Oldsmobile	1		3 11/16 x 5 1/4		Zenith					I	35x5 1/2	35x5 1/2
Paige 52-19	1 1/2	Hink	4x5 1/4	Amer Can	Stromberg	Hinkley	Bosch			W	34x3 1/2	34x5
Paige 54-20	2 1/2	Hink	4 1/2 x 5 1/4	Amer Can	Stromberg	Simplex	Bosch			W	34x4	34x8
Paige 51-18	3 1/2	Hink	4 1/2 x 5 1/4	Amer Can	Stromberg	Simplex	Bosch			W	36x5	36x5d
Packard EC	1 1/2-3	Own	4 3/16 x 5 1/4		Own		Dixie			W	36x3 1/2	36x6
Packard ED	2-4 1/2	Own	4 1/2 x 5 1/4		Own		Dixie			W	36x5	36x5d
Packard EF	4-7 1/2	Own	5x5 1/4		Own		Dixie			W	36x6	40x6d
Reo F	1 1/4	Own	4 1/2 x 4 1/2	Own	Johnson			Willard		B	34x4 1/2	34x4 1/2
Republic 75	3/4	Lyc	3 3/4 x 5		Stromberg		Auto-L			I	32x4 1/2	32x4 1/2
Republic 10	1	Continental	3 3/4 x 5		Stromberg		Bosch			I	34x3	34x4
Republic 10-E	1	Continental	3 3/4 x 5		Stromberg		Bosch			I	35x5 1/2	35x5 1/2
Republic 11-X	1 1/2	Continental	3 3/4 x 5		Stromberg					I	34x5 1/2	34x5
Republic 20	3 1/2	Continental	4 1/2 x 5 1/4		Stromberg					I	36x5	36x10

NAME AND MODEL	Tons Capacity	Engine	Bore and Stroke	Radiator	Carburetor	Governor	Ignition	Battery	Brake Lining	Final Drive	Tires	
											Front	Rear
Service	220	1	3 1/2 x 5 1/2	Long.	Stromberg.		Eiseman			W	34x3 1/2	34x5
Service	31	1 1/2	4x5 1/2	Long.	Stromberg.		Eiseman			W	36x3 1/2	36x6
Service	36	1 1/2	Buda.	4 1/2 x 5 1/2	Long.	Stromberg.	Eiseman			W	35x5	38x7 1/2
Service	51	2 1/2	Buda.	4 1/2 x 5 1/2	Long.	Stromberg.	Eiseman			W	36x4	36x7
Service	71	3 1/2	Buda.	4 1/2 x 5 1/2	Long.	Stromberg.	Eiseman			W	36x5	36x5d.
Service	76	3 1/2	Buda.	4 1/2 x 6	Long.	Stromberg.	Eiseman			W	36x5	36x5d.
Service	101	5	Buda.	4 1/2 x 6	Long.	Stromberg.	Eiseman			W	36x6	40x6d.
Service	15	1	Mid.	3 1/2 x 5	Long.	Shebler	Remy.			B	34x5 1/2	35x5
Service	12	3/4	Mid.	3 1/2 x 4 1/2	Long.	Shebler	Remy.			B	32x4 1/2	32x4 1/2
Sterling	1 1/2	1 1/2	Own.	4x5 3/4	Own.	Zenith.	Wauk.	Gould	Raybestos.	W	36x3 1/2	36x5
Sterling	2	2	Own.	4x5 3/4	Own.	Zenith.	Wauk.	Gould	Raybestos.	W	36x4	36x6
Sterling	2 1/2	2 1/2	Own.	4 1/2 x 5 3/4	Own.	Zenith.	Wauk.	Gould	Raybestos.	W	36x4	36x4d.
Sterling	3 1/2	3 1/2	Own.	4 1/2 x 6 1/4	Own.	Zenith.	Wauk.	Gould	Raybestos.	W	36x5	40x5d.
Sterling	5-W	5	Own.	5x6 1/4	Own.	Zenith.	Wauk.	Gould	Raybestos.	W	36x6	40x6d.
Sterling	5-C	5	Own.	5x6 1/4	Own.	Zenith.	Wauk.	Gould	Raybestos.	C	36x6	40x6d.
Sterling	7 1/2	7 1/2	Own.	5x6 1/4	Own.	Zenith.	Wauk.	Gould	Raybestos.	C	36x6	40x7d.
Samson	15	3 1/2		3 11/16 x 4		Zenith				B	32x4 1/2	32x4 1/2
Samson	25	1 1/2		3 11/16 x 5 1/4		Zenith				B	35x5 1/2	35x5 1/2
Traffic	6	6	Continental	3 1/2 x 5	Own.	Carter.	Bosch.			I	36x4	36x7
Traffic	4	4	Continental	3 1/2 x 5	Own.	Carter.	Bosch.			I	34x3 1/2	34x5
Traffic		3	Continental	3 1/2 x 5	Own.	Carter.	Bosch.	Willard.		I		
Veteran	E	1 1/2	Buda.	3 1/2 x 5 1/4	McCord.	Zenith.	Duplex	Eiseman		W	35x5 1/2	36x6 1/2
Veteran	A	2-2 1/2	Buda.	4 1/2 x 5 1/2	McCord.	Zenith.	Duplex	Eiseman		W	36x4	36x7
Veteran	D	2 1/2-3	Buda.	4 1/2 x 5 1/2	McCord.	Zenith.	Duplex	Eiseman		W	36x4	36x7
Veteran	H	3 1/2 x 4	Buda.	4 1/2 x 6	McCord.	Zenith.	Duplex	Eiseman		W	36x5	36x5d.
Velle	46	1 1/2	Continental	3 1/2 x 5		Stromberg	Ber.			I	36x3 1/2	36x5
White	15	3/4	Own.	3 1/2 x 5 1/2		Own.				B	34x5 1/2	34x5 1/2
White	20	2	Own.	3 1/2 x 5 1/2		Own.				B	36x4	36x7
White	40	3 1/2	Own.	3 1/2 x 5 1/4		Own.				D	36x5	40x5d.
White	45	5	Own.	4 1/2 x 5 1/4		Own.				D	36x6	40x6d.

Specifications of Farm Tractors Sold in Canada

TRADE NAME	H. P. Rating	Plow Rating	Wheels or Crawlers	Cylinders Bore & Stroke	Cylinders Vert or Hors	Fuel	Ignition System	Lubrication	Governor	Wheel Bas	Frame or Unit Construction	Weight in Pounds
Allis-Chalmers	18-30.	4	4	4-3 1/2 x 6 1/2	Vertical.	Gas or Ker.	Magneto.	Pressure	Flyball.	94	Unit.	6150
Allis-Chalmers	15-25.	3	4	4-4 1/2 x 5 1/4	Vertical.	Gas	Magneto.	Pressure	Flyball.	78	Unit.	4400
Aultman	T 15-30.	4	4	4-3 x 6 1/2	Vertical.	Ker.	Magneto.	Pressure	Cent.	98 1/2	Frame.	7800
Aultman	T 22-45.	6	4	4-5 1/2 x 8	Horizontal.	Ker.	Magneto.	Force Feed.	Cent.	104	Frame.	12300
Aultman	T 30-60.	8-10.	4	4-7 x 9	Horizontal.	Ker.	Magneto.	Force Feed.	Cent.	136	Frame.	22500
Austin	25	3	4	4-3 1/2 x 5		Gas or Ker.	Magneto.			68		4032
Avery	8-16.	2-3.	4	2-5 1/2 x 6		G. K. D.	Magneto.				Frame.	
Avery	12-25.	2-3.	4	2-6 1/2 x 7		G. D. K.	Magneto.				Frame.	
Avery	14-28.	3-4.	4	4-4 1/2 x 7		G. D. K.	Magneto.				Frame.	
Avery	18-36.	3-4.	4	4-5 1/2 x 6		G. D. K.	Magneto.				Frame.	
Avery	25-50.	4-5.	4	4-6 1/2 x 7		G. D. K.	Magneto.				Frame.	
Avery	40-80.		4			G. D. K.	Magneto.				Frame.	
Case	10-18.	2	4	4-3 1/2 x 5	Vertical.	Gas or Ker.	Magneto.	Force Feed.	Flyball.	65	Unit.	3820
Case	15-27.	3	4	4-4 1/2 x 6	Vertical.	Gas or Ker.	Magneto.	Force Feed.	Flyball.	76 1/2	Unit.	6460
Case	22-40.	4-5.	4	4-5 1/2 x 6 1/4	Vertical.	G. K. D.	Magneto.	Force Feed.	Own.	96	Frame.	9700
Chase	12-25.	2-3.	3	4-4 1/2 x 5 1/2	Vertical.	Gas or Ker.	Dixie Mag.		Pierce	94	Frame.	5200
Cletrac	W 12-20.	2-3.	2*	4-4 x 5 1/4	Vertical.	Gas or Ker.	Magneto.	Force Feed.	Flyball.	96	Frame.	3550
Cletrac	F 9-16.	2	2*	4-3 1/2 x 4 1/2	Vertical.	Gas or Ker.	Magneto.	Splash.	Flyball.	83	Unit.	1820
E-B	AA 12-20.	3	4	4-4 1/2 x 5	Vertical.	Ker.	K.W. Mag.	Splash.	Own.	87	Frame.	4355
E-B	Q 12-20.	3	4	4-4 1/2 x 5	Vertical.	Ker.	K. W. Mag.	Splash.	Own.	93	Frame.	6500
E-B	16-32.	4	4	4-5 1/2 x 7	Vertical.	Ker.	K. W. Mag.	Splash.	Own.	125	Frame.	9700
Fordson		2	4	4-4 x 5	Vertical.	Ker.	Own.	Splash.		63	Unit.	2543
Gray	18-36.	3-4.	5	4-4 1/2 x 6 1/4	Vertical.	Gas or Ker.	Bosch Mag.	Splash.	Wauk.	105	Frame.	6300
Hart-Parr	20	3	4	2-6 1/2 x 7	Horizontal.	Ker.	K. W. Mag.	Force Feed.	Flyball.	75	Frame.	
Heider	C 12-20.	3	4	4-4 1/2 x 6 1/4	Vertical.	Gas or Ker.	Magneto.	Cir. Splash.		96	Frame.	6000
Heider	D 9-16.	2	4	4-4 1/2 x 5 1/4	Vertical.	Gas or Ker.	Magneto.	Cir. Splash.		90	Frame.	4000
Huber Light Four	12-25.	3	4	4-4 1/2 x 5 1/4	Vertical.	Gas or Ker.	King Mag.	Splash.	Wauk.	91	Frame.	5000
Huber Super Four	15-30.	3-4.	4	4-4 1/2 x 6	Vertical.	Gas	Eiseman Mag.	Force Feed.	Taco	91	Frame.	6000
Imperial	15-30.	3-4.	4	4-5 1/2 x 6	Vertical.	Ker.	Dixie Mag.	Pressure	Flyball.	84	Frame.	6250
International	8-16.	2	4	4-4 1/2 x 5	Vertical.	G. D. K.	Magneto.	Force Feed.	Flyball.	85	Frame.	3600
Titan	10-20.	3	4	2-6 1/2 x 8	Horizontal.	G. K. D.	Magneto.		Flyball.	91	Frame.	5700
International	15-30.	4	4	4-5 1/2 x 8	Horizontal.	G. D. K.	Magneto.		Flyball.	94	Frame.	8700
Lauson	5 12-25.	3	4	4-4 1/2 x 5 1/4	Vertical.	Gas or Ker.	Dixie Mag.	Cir. Splash.	Own.		Frame.	
Lauson	20 15-25.	3-4.	4	4-4 1/2 x 6	Vertical.	Gas or Ker.	Dixie Mag.	Cir. Splash.	Own.		Frame.	4500
Lauson	21 15-30.	3-4.	4	4-4 1/2 x 6	Vertical.	Gas or Ker.	Dixie Mag.	Cir. Splash.	Own.	86	Frame.	6500
Lauson Road	15-30.		4	4-4 1/2 x 6	Vertical.	Gas or Ker.	Dixie Mag.	Cir. Splash.	Own.	86	Frame.	9500
Moline Universal	9-18.	2-3.	2	4-3 1/2 x 5	Vertical.	Gas	Remy.	Force Feed.	Remy.	84	Unit.	3380
Moline Orchard	9-18.	2-3.	2	4-3 1/2 x 5	Vertical.	Gas	Remy.	Force Feed.	Remy.	84	Unit.	2200
Monarch	12-20.	3	2*	4-4 x 6	Vertical.		K. W. Mag.	Cir. Splash.	Erd	60	Frame.	6000
Massey-Harris	12-25.	3	4	4-4 1/2 x 5 1/2	Vertical.	Ker Gas	Kingston M.	Splash.	Pickering.			5200
Nelson	4W.D 20-28.	4	4	4-4 1/2 x 5 1/2	Vertical.	Gas	K. W. Mag.	Force Feed.				
Oil Pull	K 12-20.	3	4	2-6 x 8	Horizontal.	Ker. D.				80	Frame.	6682
Oil Pull	H 16-30.	4	4	2-7 x 8 1/2	Horizontal.	Ker. D.				92 1/2	Frame.	9600
Oil Pull	G 20-40.	5-6.	4	2-8 x 10	Horizontal.	Ker. D.				103	Frame.	12820
Oil Pull	E 30-60.	8-10.	4	2-10 x 12	Horizontal.	Ker. D.				141	Frame.	26700
Reliable	10-20.	m.2.	4	2-6 x 7	Horizontal.	Ker				77	Frame.	3800
Samson	M	2-3.	4	4-4 x 5 1/4	Vertical.	Gas or Ker.				64	Unit.	3400
Sawyer-Massey	11-22.	3	4	4-4 x 6	Vertical.	Ker	Dixie Mag.	Splash.	Pickering.	85 1/2	Frame.	5400
Sawyer-Massey	20-40.	5-6.	4	4-5 1/2 x 7	Vertical.	Ker	Dixie Mag.	Spl Fce Feed	Flyball.	114	Frame.	11400
Sawyer-Massey	25-50.	6-8.	4	4-6 1/2 x 8	Vertical.	Ker	Dixie Mag.	Spl Fce Feed	Flyball.	124	Frame.	17500
Waterloo Boy	12-25.	3	4	2-6 1/2 x 7	Horizontal.	Ker	Dixie Mag.	Splash.	Own.	90	Frame.	5918
Whitney	B 9-18.	2	4	2-5 1/2 x 6 1/2	Horizontal.	Ker	Magneto.	Force Feed.	Own.	82	Frame.	3000

Trucks—Final Drive: W—Worm, I—Internal Gear, C—Chains, D—Double Reduction, B—Bevel. Tires: *—Optional, †—Pneumatic, d—dual. All others solid. Tractors: *—Crawlers.



"VESSOT" FEED GRINDERS

*Stock them and rejoice in a well-trodden
profit path to YOUR store*



Consistently advertised—Dominion recognized VESSOT FEED GRINDERS and GRINDING PLATES will keep your cash receipts high.

Made in 9 sizes—there is the right model for every farm and feed mill need.

Stock them today—profit right away.

*Write the nearest branch of
THE INTERNATIONAL
HARVESTER CO. of Can-
ada, for full particulars and
prices.*



S. Vessot & Company

Inventors and Manufacturers

JOLIETTE, QUEBEC

OVER 35 YEARS OF SUCCESS

INTERNATIONAL HARVESTER ISSUES ANNUAL REPORT FOR THE YEAR 1921

CHICAGO, Mar. 30.—International Harvester's annual report for 1921, made public today, shows a net profit for the year of \$4,149,918.00, compared with \$16,655,300 for 1920, and total sales of \$121,215,000, or 54 per cent. of the total for the preceding year.

President Harold F. McCormick's message to the stockholders calls last year "the worst in the history of the agricultural implement business," and points out that the business done in the United States produced no profit, all the profits showing have been derived from the company's foreign trade.

Had it not been for a conservative policy of inventory valuation, adopted at the beginning of the war, the 1921 balance sheet instead of exhibiting some profit, would show a net loss of more than \$20,000,000. Anticipating the effect of high war time prices and a subsequent inevitable decline, the company early adopted the policy of valuing the portion of the inventory constantly on hand, known as the basic inventory, at pre-war or 1916 prices. In this way fluctuations in inventory values were reflected in the amount of goods and materials carried over in excess of the basic inventory.

During the year current liabilities were reduced from \$44,938,000 at the end of 1920 to \$27,507,000 on December 31, 1921. Current assets at the close of 1921 were \$179,554,000, comparing with \$202,809,000 at the beginning of the year, making the ratio of current assets to current liabilities approximately six to one. All loans made from banks during 1921 were liquidated within the year, none being carried over into 1922.

During 1921 the directors reduced the cash dividend rate on common stock from 7 per cent to 5 per cent per annum. Cash dividend payments on preferred and common stock in excess of the year's earnings reduced the surplus by \$5,178,500. Two stock dividends of 2 per cent each were paid upon outstanding common stock and necessitated the transfer of \$3,645,414 from surplus to capital stock.

Two general price reductions on the company's products were made during the year, being based on replacement cost. The present prices are in all cases down to current market levels for materials and wages.

After heavy curtailment of operations at the company's factories, mines and mills in the United States and Canada during the summer and early fall resumption was begun in November. Construction of the new motor truck assembling plant at Fort Wayne, Indiana, deferred during the general depression, has been resumed.

AUTOMOTIVE EQUIPMENT ASSO- CIATION PUBLISH CATALOG

THE Automotive Equipment Association are publishing a catalogue containing 800 pages of information for buyers regarding the products of manufacturer members of the association.

The products are listed in sections divided according to a classification of articles in the automotive equipment industry recently made by the association. Virtually all of the approximate 250 manufacturer members have taken space to list their products. The catalogue will be distributed only to members of the association and is intended to serve as a guide to buyers of jobber members.

JOHN DEERE 1922 CATALOGUE

JOHN DEERE Mfg. Co., of Welland, Ont., are sending out to their dealers their 1922 catalogue, illustrating and describing the John Deere line of farm implements. They will be glad to send it to any dealer upon request.

SAWYER-MASSEY PLANT OPERATING AT FIFTY PER CENT. CAPACITY

ADVERSE conditions prevailing in the agricultural implement industry last year are reflected in the annual statement of the Sawyer-Massey Company, Limited, of Hamilton for 1921. The net profits of the year after providing for all operating expenses amounted to \$133,927 as against \$223,815 of the previous year or a decline of approximately 40 per cent.

From the profits of the year, there were allotments for bond interest, bond flotation expenses and \$63,180 was set aside on account of the decline in the market value of the inventory. There is carried to the credit of the profit and loss account the sum of \$6,275, which in turn reduces the debt balance of this account to \$342,922.

President R. Harmer, in commenting on the general conditions of the company, states that the company's plant is being operated at about 50 per cent. of its capacity; efforts are now being centred on the manufacture of engines and road making machinery, the sale of which is encouraging. The demand for threshers will be largely governed by the 1922 crop conditions.

WIN MORE MEDALS

AT THE Drumfriesshire and Kirkcudbrightshire Ploughing Association annual international tournament for the championship of Great Britain, held on January 7th, 1922, at Dumfries, the Case 10-18 tractor was awarded first prize and gold medal, as well as second prize and silver medal. There were nine other tractors entered in the trials.

The following points were taken into consideration by the judges:

1. Area to be ploughed in a given time.
2. Quality of work done.
3. Weight of machine on land.
4. Men in attendance (cost).
5. Fuel consumption.
6. Oil consumption.
7. Ease of transport.
8. Simplicity of design and strength.
9. Accessibility and facility of repair.
10. Ease of handling at work and on headland.

That the English farmer is intensely interested in power farming, is shown by the fact that there were 1465 persons who paid for admittance to the trials. The Case branch at 134 King Street, Hammersmith, London, reports that the demonstration disclosed many tractor prospects and that the amount and nature of the work a tractor could perform, was a revelation to those present. England is fast becoming imbued with the power farming spirit.

PROTEST HIGHER MOTOR FEES

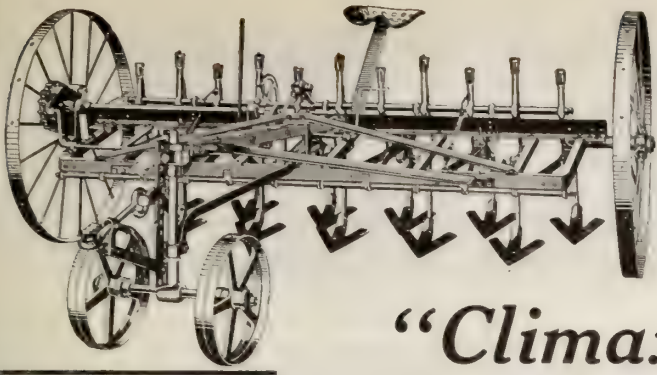
CONCERTED action in protest against heavy increase in motor vehicle fees was planned at an emergency meeting of the Automobile Club of Canada and the Montreal Automobile Trade Association, recently. The taxes on passenger cars would be increased from 70 cents per horsepower to 90 cents, and on motor trucks to \$50 per ton capacity.

It was pointed out at the meeting that the tax on a Ford car, for example, would be \$26.70 under the new rate, as compared with \$8.75 in New York state.

LINCOLN-FORD MOTOR CO.

CAPITALIZED AT \$15,250,000

LANSING, Michigan. — The Lincoln-Ford Motor Car Company was incorporated Saturday with a capitalization of \$15,250,000. There are 2,500 shares of common stock, of which Edsel Ford, President of the Ford Motor Company, holds 2,497. Henry Ford, Henry M. Leland and Wilfred C. Leland hold one share each.



Frost & Wood

"Climax" and "Champion" Cultivators

Stiff-Tooth

Spring-Tooth

Your customers know that thorough cultivation is the greatest aid to the production of satisfactory crops. Show them the many advantages of these cultivators for Spring and Summer cultivation.

"Climax" Stiff Tooth Cultivators are great weed destroyers. They're unequalled for ridding fields of twitch grass and keeping the land free of other noxious weeds. The best cultivator on the market for summer fallowing.

"Champion" Spring Tooth Cultivators have strength and capacity for heavy, hard work. Teeth are highest quality and strongly reinforced. Sections work independent of each other so all ground is uniformly tilled.

Either type supplied with Power Lift and Tractor Hitch when desired. Ask our nearest branch for further particulars. There is real business in these lines, **now**, to the dealer who pushes for it.

The Frost & Wood Co. Limited

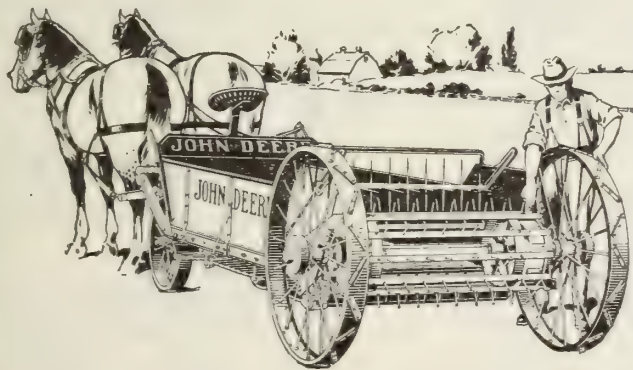
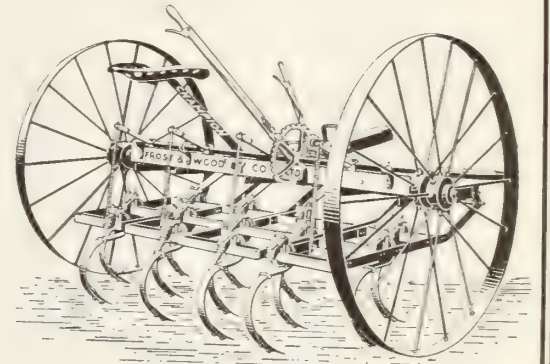
Smiths Falls, Ontario

Montreal, Que. Quebec, Que. St. John, N.B. Truro, N.S. Charlottetown, P.E.I.

Sold in Western Ontario and Western Canada by

Coskshutt Plow Company, Limited

Brantford Winnipeg Regina Saskatoon Calgary Edmonton



JOHN DEERE SPREADER

The Spreader With the Beater on the Axle

Eight years ago the John Deere Spreader was put on the market. It met with immediate favor. Its easy-loading qualities, its high drive wheels, its freedom from chains, clutches and adjustments, and its extreme simplicity marked it as a labor-saving and unusually serviceable manure spreader. Evidence that it has fulfilled the needs of the farmer is found in the fact that thousands of John Deere Spreaders are doing almost daily service on as many farms.

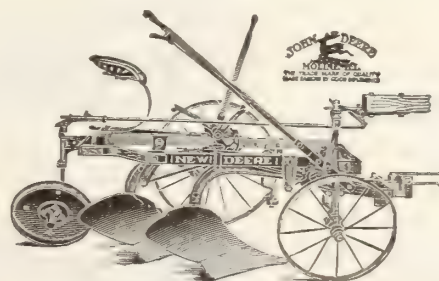
NEW DEERE SULKY and GANG PLOWS

They do the Work as the Farmer Wants it Done!

That's a traditional tribute of farmers to John Deere plows—and the New Deere Sulky and Gang have done their full share in earning it.

They are equipped with genuine John Deere Ontario Bottoms—the bottoms that scour, wear well, and make good seed beds. Their quick detachable shares are extra strong and close-fitting.

You are sure to sell satisfaction when you sell a New Deere Sulky or Gang Plow.



New Deere Gang

JOHN DEERE MANUFACTURING CO., LIMITED
WELLAND



CTURING CO., LIMITED
ONTARIO

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL BUYERS DIRECTORY

This directory will help you with your buying and your planning. The advertisers listed here are thoroughly reliable and leaders in their respective fields. They are looking for live, wide-awake representatives. Study their advertisements carefully because they contain valuable information which will dovetail with your plans. We are glad to go to the trouble of arranging this list—to make it easy for you to select new lines. If it so happens that what you want is not here, write us, and we will tell you where to get it.

AUTOMOBILES

Willys-Overland Limited, Toronto.

AUTO ACCESSORIES

Geo. H. Broughton, Toronto.
Canadian National Carbon Co., Toronto.
Cochran Foundry and Machine Works, Tillsonburg, Ont.
A. B. Jardine & Co., Ltd., Hespler, Ont.
Kemp Metal Auto Wheel Co., Toronto.
Letersain Sales Co., Montreal.
Pressure Proof Rings Co., Montreal, Que.
Richardson & Bureau, Montreal, Que.
Shaw Auto Salvage Parts Supply Co., Toronto.

AUTOMOBILE WHEELS

Kemp Metal Auto Wheel Co., Toronto.

AUTOMOBILE TIRES

BALING PRESSES

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

BARN EQUIPMENT

BEET MACHINERY

John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

BEARINGS

BINDERS

Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

BELT LACINGS

Flexible Steel Lacing Co., Chicago, Ill., and London, Eng.

BRAKE LINING

Richardson & Bureau, Montreal, Que.

BATTERIES

Canadian National Carbon Co., Toronto.

CARRIAGES

Cockshutt Plow Co., Ltd., Brantford, Ont.
Penetang Carriage Co., Penetang, Ont., and Toronto, Ont.

CREAM SEPARATORS

De Laval Co., Ltd., Peterboro, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto

CASTINGS

CORN HARVESTERS

Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

CORN MACHINERY

John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
Peter Hamilton Co., Ltd., Peterboro, Ont.

CULTIVATORS

Cockshutt Plow Co., Ltd., Brantford, Ont.
Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

CRANES (Floor)

A. B. Jardine & Co., Ltd., Hespler, Ont.

DAIRY SUPPLIES

De Laval Co., Ltd., Peterboro.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto

DRILLS, GRAIN

Cockshutt Plow Co., Ltd., Brantford, Ont.
John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

DRILLS, TWIST

DRILLS, GRAIN

International Harvester Co., of Can., Ltd., Hamilton, Ont.

ELECTRICAL EQUIPMENT

Canadian National Carbon Co., Toronto.

ENGINES

John Deere Mfg. Co., Ltd., Welland, Ont.
Cochrane Foundry and Machine Wks., Tillsonburg, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto
London Gas Power Co., London, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.

ENGINE STANDS

A. B. Jardine & Co., Ltd., Hespler, Ont.

ENSILAGE CUTTERS

International Harvester Co., of Can., Ltd., Hamilton, Ont.

FEEDERS

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

FARM MACHINERY

Aermotor Company, Chicago, Ill.
Cockshutt Plow Co., Ltd., Brantford, Ont.
Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto

FLOOR CRANES

A. B. Jardine & Co., Ltd., Hespler, Ont.

GRINDSTONES

S. Vessot & Co., Joliette, P.Q.

GRINDERS

International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto
S. Vessot & Co., Joliette, P.Q.

HARROWS

Cockshutt Plow Co., Ltd., Brantford, Ont.
Frost & Wood Co., Ltd., Smith Falls, Ont.
John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
Whitney Tractor Co., Cleveland, Ohio.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.

HAY LOADERS

International Harvester Co., of Can., Ltd., Hamilton, Ont.
Cockshutt Plow Co., Ltd., Brantford, Ont.
Frost & Wood Co., Ltd., Smith Falls, Ont.

HAY PRESSES

International Harvester Co., of Can., Ltd., Hamilton, Ont.

HOOKS AND HANDLES

Flexible Steel Lacing Co., Chicago, Ill., and London, Eng.

LAMP GUARDS

Flexible Steel Lacing Co., Chicago, Ill., and London, Eng.

LENS

Keyes Supply Co., Ltd., Ottawa, Ont.

LIGHTING SYSTEMS AND ACCESSORIES

Canadian National Carbon Co., Toronto.
R. A. Lister Co. (Canada), Ltd., Toronto

LUBRICANTS

Spedolene Refining & Mfg. Co., Ltd., Montreal.

MACHINE TOOLS

Butterfield & Co., Rock Island, Que.
Windsor Machine and Tool Works, Windsor.

MANURE CARRIERS

MANURE SPREADERS

Cockshutt Plow Co., Ltd., Brantford, Ont.
John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

MARINE FITTINGS

MOWERS

Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

MILKING MACHINES

De Laval Co., Ltd., Peterboro.
R. A. Lister Co. (Canada), Ltd., Toronto

MISCELLANEOUS

Spramotor Co., London, Ont.

OILS

Spedolene Refining & Mfg. Co., Ltd., Montreal.

PISTON RINGS

Burd High Compression Ring Co., Rockford, Ill.
Lamontagne, Ltd., Montreal.
The Piston Ring Co., Ltd., Montreal, Que.

PLOWS

Cockshutt Plow Co., Ltd., Brantford, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
Whitney Tractor Co., Cleveland, Ohio.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.

POWER AND LIGHT EQUIPMENT

R. A. Lister Co. of Canada, Ltd., Toronto.

POWER MACHINERY

International Harvester Co., of Can., Ltd., Hamilton, Ont.

POTATO MACHINERY

John Deere Mfg. Co., Ltd., Welland, Ont.

PULVERIZERS

Cockshutt Plow Co., Ltd., Brantford, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

PRESSES

A. B. Jardine & Co., Ltd., Hespler, Ont.

RAKES

Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

REAPERS

Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

REAMERS

ROAD GRADERS

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

ROCK CRUSHERS

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

ROLLERS

ROLLER BEARINGS

SCUFFLERS

Cockshutt Plow Co., Ltd., Brantford, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

SCALES

STABLE EQUIPMENT

SLEIGHS

Cockshutt Plow Co., Ltd., Brantford, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

SILLO FILLERS

International Harvester Co., of Can., Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.

SOCKET WRENCHES

SEPARATORS (CREAM)

De Laval Co., Ltd., Peterboro.
R. A. Lister Co. (of Canada), Ltd., Toronto, Ont.

SPRAYING EQUIPMENT

SPREADERS, MANURE

Cockshutt Plow Co., Ltd., Brantford, Ont.
John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

SPARK PLUGS

Russell Gear & Machine Co., Ltd., Toronto.

SPRINGS

STACKERS

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

STARTERS

Universal Battery Co., Chicago, Ill.

STAMPINGS

TRACTORS

Advance—Rumley Thresher Co., Inc., Toronto, Winnipeg, Calgary.
Cleveland Tractor Co., Cleveland, Ohio.
Gary Motor Truck Co., Toronto.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto
Whitney Tractor Co., Cleveland, Ohio.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.

TRACTOR PLOWS

Cockshutt Plow Co., Ltd., Brantford, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
Cleveland Tractor Co., Cleveland, Ohio.
John Deere Mfg. Co., Ltd., Welland, Ont.

TOOLS

Butterfield & Co., Rock Island, Que.
Windsor Machine and Tool Works, Windsor.
Russell Gear & Machine Co., Ltd., Toronto.

THRESHERS

Advance—Rumley Thresher Co., Inc., Toronto, Winnipeg, Calgary.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.
R. A. Lister Co. (Canada), Ltd., Toronto

TIRES

TWIST DRILLS

Butterfield & Co., Rock Island, Que.

TRUCKS

Beaver Truck Corporation, Ltd., Hamilton.
Dominion Truck & Equipment Co., Ltd., Kitchener, Ont.
Gary Motor Truck Co., Toronto.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.
Ruggles Motor Truck Co., Ltd., London.

TRUNKS

Lamontagne, Ltd., Montreal.

WAGONS

Cockshutt Plow Co., Ltd., Brantford, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

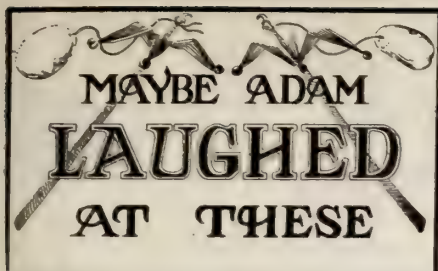
WRECKING CRANES

A. B. Jardine & Co., Ltd., Hespler, Ont.

WINDMILL

Aermotor Company, Chicago, Ill.

WIRES AND CABLES



Luxury Ad Infinitum:—Mrs. Habitual Shopper—Have you a real sporty-looking town-car that will match this sample? I must have one to go with my new gown.

War Will Follow:—Microbe—Who are the new bugs that just came into our milk can?

Bacterium:—Probably some more strained relations.—Stanford Chaparral.

The Retort Crushing:—Traffic Cop—Say, you! Didn't you see me wave at you?

Mirandy:—Yes, you fresh thing, and if Henry were here he'd paste you one for it.—Sun Dodger.

About the Same:—North: "Do you let your wife have her own way?"

West: "Absolutely. And when it comes to rain I let it rain, and when it wants to snow I let it snow."—American Legion Weekly.

A Sensitive Sole:—Colored Rookie—"I'd lak to have a new pair o' shoes suh!"

Sergeant:—"Are your shoes worn out?"

"Worn out! Man, the bottums on mah shoes are so thin ah can step on a dime and tell whether it's heads or tails!"—Pitt Panther.

Fooled Him:—"What?" roared the father. "You ask me for my daughter's hand?"

"Y-y-yes, sir," stuttered the bashful lover. "I didn't think it would do any harm."

"Well, by gravy, you'll find it has. You can have her."—American Legion Weekly.

A Study in Repose:—There were two figures in the wheat field. One stood stolidly, motionless. The other moved here and there. One was the hired man; the other was a scarecrow. The reason the scarecrow moved so much was that he couldn't stand still in the wind like the hired man!—New Rochelle Standard.

Nothing Doing:—"Mandy, I think I'se gwine put on my bes' clothes and go down to de theayter ternaight to see de chorus ladies dance."

"Rastus, listen heah. If dat am whut yuh thinks, then yuh'd bettah think again. Niggah, yuh ain't gwine put on nothin' to go no place no time to see nobody do nothin' never, nohow, an' not at all. Does yuh understan?"

At the Motor Show:—Lady—This is the car I want.

Salesman:—Shall I drive it home for you?

Lady:—No, drive me home in that big one over there.

Salesman:—But I thought you wanted this small one.

Lady:—I do. When hubby sees the big one he will compromise on the small one.

Does She Work on Wheet or Barlie?—An enterprising Canadian company advertising a certain make of electric washer was amazed one morning to find the following letter in the morning mail:

"Deer sir: Your macheen, she look good to me. How many galens will she hold and how much money will it cost to put pipe for cooling in. Does she work on wheet or barlie. You work great bluf on wash macheen. I laf. You let me know what you take to fix me up."

Every Business Man Should Read

the fascinating serial of business, finance and adventure, which shows how our ancestors coped in 1822 with the problems we are facing in 1922,

OVINGTON'S BANK

By Stanley J. Weyman

which began in the March 15th issue of MacLean's Magazine.

History Repeats Itself!

1822—1922

Amazing Analogies. Surprising Parallels

The year 1822 hit our grandfathers or great-grandfathers just such a blow as 1921 and 1922 have hit many of us to-day.

In 1822 the world was recovering from the aftermath of the Napoleonic wars; the business tide was turning, just like we believe it is turning to-day. England had resumed gold payments; speculation was rife; new industries had bloomed and withered and others were germinating; private banks were promising investors 25% and 50% on their money; "rash" promoters were prophesying that ere long steam engines would be pulling a fifteen-ton "goods" train at the astounding speed of twelve miles an hour!



No business man in Canada who is interested in the practical value of historical parallels should pass this story by. Do you think that you would have seen the possibilities of the steam engine and industrial expansion which Ovington saw? Or would you have been one of those who could see no farther than stage-coach days?

The second instalment appears in the April 1st issue of MACLEAN'S, but it is not a bit too late to start this story now. If you cannot get a copy of the March 15th issue, start in with the synopsis of the opening chapters which appears, along with the second generous instalment in the

April 1st

MACLEAN'S
"CANADA'S NATIONAL MAGAZINE"

On Sale Today
20c
At all News Stands

Sell the line already half sold

A timely reminder!

Are the farmers in your territory facing lower Spring prices for their milk?

When the farmer's milk income tumbles he looks around for ways to make up the loss.

And he finds them—if you show him—in the

Melotte Cream Separator and Lister Milker

—two famous machines with a Canada-wide reputation for economy and efficiency.

No better moment than now for selling these machines!

Live Agents Wanted

If you are interested in a monthly cash income write for the Lister 1922 agency proposition.

R. A. Lister & Company
(Canada,) Limited
Toronto and Winnipeg

Evolution Is Rapid These Days

THERE never has been a time when conditions changed so quickly—when life bettered itself so consistently—when the inventive mind turned so readily to new things that better fill old needs.

New conveniences and comforts are coming in all the time. And the conditions under which all things are made and sold are subject to frequent alteration.

The rapidity of modern commercial evolution vitally affects us all. And especially it affects the purchasing power of our money.

Whether you buy little or much, in order to buy intelligently, you must keep yourself informed. And there is only one way in which you can keep your information up to the minute.

READ THE ADVERTISEMENTS.

The advertisements are messages from the business world to you. They inform you of all that the world of invention and discovery is doing to make your work easier, your home life more pleasant, your clothing and food problems less difficult.

*Read the advertisements and reap the
advantage that is yours*

Dairy and Household Supplies

CANVASSING WILL INCREASE DAIRY EQUIPMENT BUSINESS

EVERY one of us who has followed the trend of thought not only among farmers but among commercial clubs and bankers during this past year, has been surprised at the interest shown in dairying, says T. S. Livingston, in the De Laval Monthly. The dairy business has made and will make wonderful progress this year due to necessity and a greater appreciation of the dairy cow on the part of the farmer, and a realization by bankers and business men that the dairy industry is the safest and the most dependable branch of agriculture.

With this extremely favorable feeling on all sides, there never was a better time to get out into the country and sell cream separators and milkers than right now, and for the next few months.

Many farmers are trying to get along without separators, and a crude way of milking, thinking that they are economizing, but they are actually losing the price of a separator or milker by such false economy.

Every dealer should make a supreme effort to see that every farmer in his trade territory knows exactly what a separator and milker will do toward helping him make more money and meet his obligations.

If you simply say, "Yes, I know these are good for the farmer, and that they should milk more cows, both for their own and the community's good, but it doesn't pay to canvass," and let it go at that, I honestly believe that you won't sell within 75% of your possibilities. I base this belief on the fact that goods must be sold because the farmer has not yet reached the point where he will come to your store to purchase them.

Admitting that your customer should have a cream separator and a milking machine in these trying times, and that three-quarters of your goods will have to be sold, no right-thinking dealer will let three-quarters of his business go by default.

That would be an injustice to your customers, to your business and to yourself. This is the year to canvass your trade territory. You need the profit and your customers need the extra profit from their cows.

I believe the term "canvassing" has been greatly misused and misunderstood, especially since we quit using "Old Dobbin" and can now roam around so easily with "Henry." But if we look for Webster's definition we find that canvassing means "to sift, to examine thoroughly, to argue, to make a solicitation." There is no meaning of the term when properly used that should not apply to good business of any kind.

One of the things that has done more to discourage canvassing than anything else has been the lack of system and planning. Not giving enough consideration to the choice of the man who is to do the canvassing has also caused dissatisfaction at lack of results. By systematically planning every detail so that the territory can be covered thoroughly, but without waste of time or money, and by getting the right man on the job with a thorough and complete knowledge of his goods, canvassing will pay and pay big.

Not only will canvassing pay, but of equal importance is the fact that you make more friends, create more good will and learn more about credits than is possible in any other way. Canvassing also brings a quick turnover

of your stock, and rapid turnover means greater profit.

Last year in one county in southeast Arkansas the county agent and business men of the community commenced to boost the dairy business as a "life saver" both for the cotton farmer and business. The local dealer in that place who is a live wire, by canvassing, sold 20 separators in five months. He not only made a good profit in selling the separators as he turned over his original investment of \$450 four times in five months, but the separators were the means of bringing several thousands of dollars to that community which they wouldn't otherwise have received.

Every dealer who will sift and examine thoroughly his list of customers in his trade territory this year, send in a list of separator and milker possibilities to his company, and take advantage of all the manufacturer's sales helps in advertising, and follow this up by calling on these prospects and argue the necessity of more and better dairying will be rewarded by gaining 75% in sales. And by so doing he will have rendered a service to his business and to his customers by increasing their cash income, and by increasing the cash income of his customers he will have increased the community wealth.

CASE T. M. DIVIDENDS ASSURED

CONSPICUOUS among the farm implement statements resulting from 1921 operations, is that of the J. I. Case Threshing Machine Co., of Racine, Wisconsin. In a year recognized as unfortunate for this industry, definitely reflected by large losses and seriously impaired surplus accounts, the Case T. M. Co. shows net operating profits for the year of \$405,914.48.

Losses through shrinkage in inventory values and idle plant expense of \$3,289,345.72 result in a net charge against surplus of but \$583,431.24, the balance being absorbed by the company's reserves. It is interesting to note that the reserves set up in previous years were sufficient to cover all losses if so applied.

Conservative management wisely sets up additional reserves of \$700,000.00 for further contingent inventory losses against an inventory of \$14,634,368.42. The inventory was reduced during the year by \$7,757,853.73.

The company's sound financial position is evidenced by a reduction in notes and accounts payable of \$2,651,470.64. The debt at the close of the year is \$5,855,000.00 of bills payable and \$601,221.24 of accounts payable, a total of \$6,456,221.24. This debt is protected by \$21,411,013.03 of current assets, the ratio of current assets to debt being 331 per cent.

The surplus remains at \$1,622,491.15, and the reserve for contingent losses at \$1,000,000.00, besides a special inventory reserve of \$700,000.00 shown in the deduction from the inventory, making a total reserve for contingencies of \$1,700,000.00.

GOOD ARGUMENT FOR THE MILKING MACHINE

E. C. STONE, Secretary of the American Hampshire Swine Record Association, speaking at the meeting of the tractor manufacturers, February 27th, paid tribute to the value of milking machines, stating that as the result of the purchase of such equipment for use on his farm near Peoria, Ill., he was able to dispense with the services of a \$42.00 a-month farm hand. He also stated that the increase in milk production which resulted from the use of the milking machine would enable him to purchase a farm tractor once every six years.

INCREASED BUSINESS WITHOUT COERCION

This advertisement is one of a series in which we have tried by plain statement of facts and figures to show—

- (1) That De Laval business is fine, having increased in sales on an average of 75% over a year ago;
- (2) That this condition is due partly to the extremely favorable position of dairying as compared with other branches of agriculture, and partly to the fact that some of our dealers are taking advantage of this condition;
- (3) That even though your customers are short of cash, you can sell them De Laval Separators and Milkers by means of the De Laval Note Settlement Plan;
- (4) That canvassing and hard work back of the De Laval Line will bring big returns now and for the next few months.

We are happy to say that this appeal to reason is having the desired effect, and that more and more dealers are pushing the De Laval Line and getting the business.

It is important to know, too, that no part of our greatly increased business is due to coercive selling methods. De Laval dealers are not compelled to order from 5 to 25 machines to hold their De Laval agency, regardless of whether they can sell them or not. Nor have we any big inventory of trucks, tractors, etc., to unload on dealers as a condition to their holding the De Laval Line. The De Laval Company does not believe in such methods and has no need to resort to them.

Every De Laval product must stand on its own feet and sell on its own merits.

Nor are we satisfied to make each De Laval machine the best of its kind, but we go the limit in making sales easier for our agents and in making satisfied users.

Thousands of successful merchants will testify that this is true—that there is not only profit in selling De Laval Separators and Milkers, but their other business is benefited by the prestige which the De Laval Line gives and that there is satisfaction in all their dealings with the Company.

THE DE LAVAL COMPANY, Ltd.

MONTREAL PETERBORO WINNIPEG EDMONTON VANCOUVER

**Sooner or later you will sell the
De Laval**



*Never
Break*

*Never
Warp*

KEMP METAL AUTO WHEEL

*All Cars Will Eventually Adopt This Wheel
Because of its indestructible Qualities*

A GREAT percentage of auto accidents are due to wheel breakage. Considering the construction of the auto wheel that has been in popular use this is not surprising. But, like many other features of automobile design advances in wheel construction were bound to take place as a matter of safety, if for nothing else. The advance is seen in the invention of the Kemp Metal Auto Wheel.

In appearance the Kemp Metal Auto Wheel resembles the wood artillery wheel. But it is cheaper and in-

comparably stronger. The spokes are metal die cast tubes of a special steel of unusual density and hardness.

The spokes are firmly held by compression, they are not weakened by having pins, bolts or rivets pass through the ends nor by threaded ends. In addition they are so mounted as to give considerable resilience to the wheel without rattling or springing the rim or felloe band. The result is a wheel of medium weight, fine appearance, and unequalled strength and at a lower price than a wood wheel.

SECURE AGENCY NOW

*It will pay you big
dividends*

The jobber, the dealer, or the garageman who is alive to his opportunities and who is anxious to get in on the ground floor will secure the agency for the Kemp Metal Auto Wheel without delay. All cars will eventually adopt this new invention. It has proven its worth under the severest of tests. It is the sensation of all automobile shows. It is a real seller with a big field of opportunities.

WHY NOT WRITE FOR AGENCY PROPOSITION NOW?

The Kemp Metal Auto Wheel Co. Limited
122 Richmond Street West, Toronto

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

Published Monthly by THE MACLEAN PUBLISHING COMPANY, LIMITED, TORONTO

MONTREAL, Southam Bldg.

WINNIPEG, 901 Confederation Life Bldg.

NEW YORK, 1133 Broadway, Phone Watkins 5869.

VANCOUVER, 314 Carter-Cotton Bldg., 198 Hastings St. W.

BOSTON, 734 Old South Bldg.

LONDON, ENG., 88 Fleet St., E.C. 4

CHICAGO, 405-6 Transportation Bldg.

VOL. IV, No. 5

TORONTO, MAY, 1922

Subscription Price
\$2.00 Per Year

For Your Customers' Home Supply

Implement dealers find the 15-gallon Imperial Polarine Steel Drum an ideal package which multiplies the amount of their oil sales to every customer.

Think of the time, effort and expense you can save yourself by selling your trade a **season's** supply of the right grade of Imperial Polarine Motor Oils in this clean, neat, leak-proof package.

Think, too, of the convenience and saving which you can offer your customers as an inducement to buy.

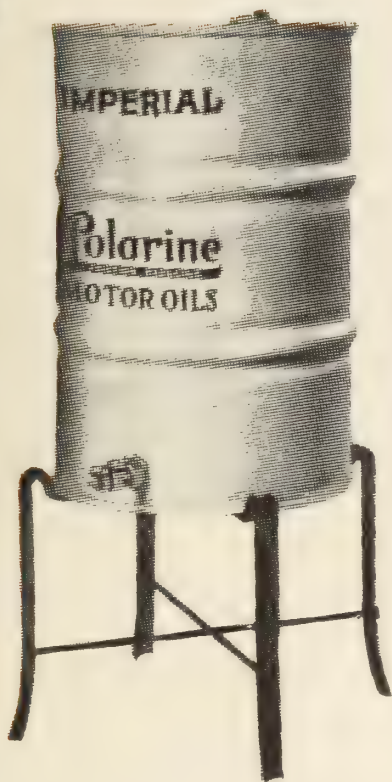
Practically every automobile, truck and tractor owner in your territory is a prospect for one or more of these drums in the course of a year. It's to your profit and theirs to educate them to buy for their requirements **by the season.**

A suggestion you can turn into profit—sell a 15-gallon steel drum, filled with the right grade of Imperial Polarine Oil as recommended on our Chart, with every truck, tractor or automobile you sell. This means not only an extra profit for you but also the complete satisfaction of your customer with the unit.

It will pay you well to investigate the profitable possibilities of the new 15-gallon Imperial Polarine Steel Drum. Ask our salesman for the details or write to 56 Church Street, Toronto.

IMPERIAL OIL LIMITED

*Canadian Company—Canadian Capital
Canadian Workmen*



The 15-gallon Imperial Polarine Steel Drum shown above is sold with or without the rack. It stands on end and occupies a minimum of floor space. Drum and stand are well made and nicely painted and will last for years. Can be furnished with a special, leak-proof, automatic faucet if desired. Complete unit supplied to dealers at less than factory cost.



Master Dealer Assortment Class "A"

- 1 No. 500 Billmont Mechanics' Kit.
- 2 No. 300 Billmont Socket Sets.
- 2 No. 310 Billmont Socket Sets.
- 2 No. 400 Billmont Motorists' Kits.
- 3 No. 200 Billmont Garage Sets.
- 6 No. 1 Billmont Master Wrench Sets.
- 2 No. 0 Billmont Master Wrenches.
- 2 No. 2 Billmont Junior Wrenches.
- 2 No. 8 Billmont Ratchet Wrenches.
- 2 No. 9 Billmont 6-inch Extension.
- 2 No. 10 Billmont 11-inch Extension.
- 1 No. 350 Cabinet and Socket Assortment.
- 1 Master Dealer's Large Display Board.

This Fine Billmont Display Board FREE!

Here is a striking display board, standing higher than a man, in strong attractive colors that will compel attention for your stock of Billmont Wrenches. It costs us real money to prepare these boards, but our aim is to help you **SELL** Billmont Wrenches.

One of these fine display boards will be furnished free to selected dealers who sign a Billmont Master Dealers' Contract.

A Live Merchandising Plan for Billmont Master Dealers

We will circularize your mailing list at no expense to you; inquiries will be referred to Master Dealers; newspaper cuts will be furnished free for your local advertising; special Master Dealers' prices enable you to sell mechanics and quantity purchasers; catalogs and advertising material furnished with your name imprinted.

The Billmont Wrench is a worth-while proposition. It fills a real need of mechanics, garages, car owners, farmers, industrial plants; in fact of every one working with nuts and bolts.

Billmont Wrenches are an economy, as well as a wonderful convenience. A set of eight wrenches, with only twenty-four sockets, equal 192 wrenches. It is surely an economy for any man to be able to buy such a **complete** outfit that yet contains so few tools. And you can sell them singly or in sets.

Remember "Billmont Sockets" are absolutely guaranteed against breakages when used with "Billmont Wrenches."

Write us for details of Master Dealer Proposition. It's a profit-maker!

Russell Gear & Machine Co., Limited
1209 King Street West, Toronto, Canada

BILLMONT

WRENCHES

with Interchangeable Sockets

"8 Hands with 192 Grips"



Opportunity

A New Sales Opportunity for Progressive Dealers

THE THOUSANDS of tractors sold the last few years have multiplied the opportunities for thresher sales. Nearly every tractor owner is now a thresher prospect.

There are two reasons why Case dealers can get the big share of this business—their opportunity now is greater than it has ever been before.

One reason is the Case Thresher. These machines are made in 7 sizes to meet the requirements of all tractor owners and all farm conditions.

Case Threshers handle every kind of grain and seed satisfactorily. They are efficient, thresh clean and save the grain.

The average life of a Case Thresher is easily 20 years. Most of the first Case steel machines sold in 1904 are still in use and the machines built today are even more durable. Compare this with any other farm machine you sell—this is a great selling advantage.

Every part in a Case machine is made to do its work properly and efficiently. Changing from one kind of grain to another usually does not require more than three simple adjustments and all can be made without stopping—this is a feature that will appeal to farmer threshermen.

The first Case threshing machine was made 80 years ago. Constant development and improvements have made the Case a popular machine in every country where grain is grown and today more Case machines are sold annually than of any other make.

Another advantage now available to aggressive dealers is a new plan for working up thresher sales. This is now ready. See the Case salesman or write for the details of this sales plan. You'll find it is a business getter.

J. I. CASE THRESHING MACHINE COMPANY

Dept. T216

Racine

Wisconsin

NOTE: We want the public to know that our plows and harrows are NOT the Case plows and harrows made by the J. I. Case Plow Works Co.



CASE
POWER FARMING
MACHINERY



Factory Branch at Toronto, Ontario—345-349 Dufferin St.

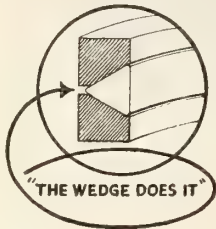
Hints to Buyers

Mail
Or Wire
Your
Orders



Immediate
Service
Assured

Patented throughout the World.
Canadian Patent Nov. 1917.



Wedge Rites particular stunt in this world is doing the unusual.

For that outlaw motor, for the man that demands the utmost power, in short for unrivalled performance select.

WEDGERITE PISTON RINGS

Manufactured by

The Piston Ring Co., Limited

Montreal, Que.

"Fills Groove
and Cylinder
for the life
of the ring"



"Positive
Expansion
in both
directions"

Pat. Mar. 2, 1915, Feb. 29, 1916

PRESSURE-PROOF PISTON RINGS

TEMPORARILY, yes! 'most any piston ring will overcome oilpumping, poor compression, etc.—but for PERMANENCY there's only one ring to consider, that's the PRESSURE-PROOF.

Put a trial set in the worst performing car you know of—there you'll find PROOF that they're PRESSURE-PROOF, absolutely.

PRESSURE-PROOF Jr. 2-piece and PRESSURE-PROOF 3-piece rings from any of the following:

James Cowan, London, Ont.

Can. Fairbanks-Morse, St. John, N.B.

Rice Lewis, Toronto

J. H. Ashdown Hardware Co., Winnipeg, Calgary, Saskatoon and Edmonton

Lewis Bros., Montreal

C. Kloepper, Toronto

Samuel Trees & Co., Toronto

Manufactured by

PRESSURE-PROOF RINGS, LIMITED

SHERBROOKE

QUE.

The Penetang Carriage Co., Ltd.

Factory—Penetang, Ontario

Sales Office: 742 Yonge St., Toronto

**Manufacturers of
High Grade Commercial Bodies**



**The Only Way To
Handle and Display
Tires**

This shows Ceiling and Floor Racks. They cut the cost of handling tires and save money. Why not build your own racks with Mankey Tire hangers and 1-inch gas pipe. The price is low. Please ask your jobber or write direct. Write us—we will send a rack on free 15 days trial. Hangers \$12 per dozen.

Delivered f.o.b. Montreal, Toronto, Winnipeg, Vancouver.

MOTOR NECESSITIES COMPANY

231 Somerset Street, Winnipeg

GASOLINE MOTORS \$50.00 and up 4 CYLINDER—4 CYCLE

20 horsepower and up, these motors are taken from high-priced automobiles, and can be used for any purpose where power is required. Hundreds of these motors in use all over Canada are giving satisfaction in motor boats, tractors, cutting boxes, sawing wood, running machinery, etc. We also carry the largest stock in Canada of slightly used parts for motor cars of all kinds.

Satisfaction or refund in full, our motto.

Shaw's Auto Salvage Part Supply
927-31 Dufferin Street
TORONTO

SAFES FOR SALE

One J. & J. Taylor Safe, inside dimensions 15 inches deep, 2 feet 6 inches wide, three feet, 11½ inches high and fitted with a built in compartment. Price \$250.00

One J. & J. Taylor Safe 18 inches deep, two feet 9 inches wide, four feet 5 inches high, fitted with a steel compartment. Both safes are in good condition and can be bought at a price that will save considerable money to the purchaser. Price \$200.00. Box 100

BOX 100, MOTOR & TRACTOR, 153 University Ave., Toronto

Dealers, Attention!

Get our propositions on

Portable Saw-Mills,
Gang and Single Edgers
Gasoline and Kerosene
Engines

Emery-Grinders
Water Bowls,
Plow-points, Etc.

GRAY IRON AND BRASS CASTINGS

The Cochrane Foundry & Machine Works

Tillsonburg

Ontario

BROUGHTON'S BLOWOUT BOOTS

(Formerly Steeltire Clasps)

The centre plates are now being made of Cold Rolled Steel. Cuts for Catalogues supplied on request at all good jobbers.



**THE GEO. H. BROUGHTON Co., 126 WELLINGTON ST. W.,
Toronto**

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

Volume 4

TORONTO, MAY, 1922

Number 5

Wanted—A Tractor Merchandiser

James A Craig, President Samson Tractor Company, in an Address Before the Wisconsin Implement Dealers at Their Annual Convention Held Recently, Said Some Startling Things About the Merchandising of Power Farming Machines, Which We Reproduce in Part. He Hopes the Signs Over Dealers' Buildings Will Change From "Implement Dealer" to "Farm Equipment Dealer"

"AS I LOOK at it, what we manufacturers should be the most interested in at this time is to assist you dealers in organizing your business so as to become real farm operating equipment merchants. I am going to be very frank with you in stating that I do not think the organization as we know it, selling under the banner of implement dealers or automobile dealers or garages, and the manner in which these businesses are now conducted, meets the demands of the day when it comes to selling farm equipment; and I am frank to confess that I have been considerably concerned for some time as to just whether the implement dealers as a whole were going to arise to the occasion and save this business, which properly belongs to this class of merchants.

"You will recall when the automobile first came on the market how some of you rushed in and secured the agency for some good cars and soon were bitterly disappointed in the results you were able to obtain, particularly in regard to profits. I am old enough to remember very distinctly the different state dealers' convention 'resolutions' against handling automobiles. Some of the best implement manufacturers and dealers in this country appeared before you on your programs and urged you to leave this industry alone. It is barely possible that this was a wise thing to do, but when you lost the vehicle business out of your line, there dropped out one of the most profitable parts of your business, which you have never been able to replace.

"But have you stopped to reflect what is going to happen if you fail to meet the requirements necessary to market the present and coming farm equipment? It will not alone mean a loss of part of your business, but all of it, unless you perhaps are now combining the lines of hardware and implements and will be content to simply handle the small amount of horse-drawn implements that there will be a demand for in the future.

"I am well aware that there are many dealers today who are still questioning the permanency of the tractor and truck business, but I can only remind them that there were just the same persistent arguments put up that the automobile was a fad and would pass out like the bicycle. I simply want to ask, where is the man today who is making a fortune selling top buggies, surries, and platform spring wagons, and what will you take for your profits in selling farm wagons in the last five years?

"I want to say to you from actual, personal experience, as being one who is paying the bills, that I positively know it is absolutely more economical to operate a farm with mechanical power as compared with horse power, to say nothing about the personal pleasures and advantages that go along with it.

"As you understand how the farmer's horizon has been widened by the use of the automobile, in a like

manner his business advantages will be expanded by the use of a farm truck. Every good piece of road that is built and passes the doorway of a farmer makes that man immediately a prospective customer for a truck, and he can be shown conclusively that it is money in his pocket to buy one. As soon as you dealers appreciate these facts, we will at that time take a tremendous step forward in settling for all time that the implement dealer is the logical man to handle farm mechanical equipment.

"You must be fortified with full information that will enable you to show the farmer conclusively why it is economy to buy power farming equipment. You must also be prepared to show him that at the price he has got to sell his products for this year, he must produce them at the least possible cost."

"We manufacturers have got to lend you, this coming year, more personal support than we have ever done since the days after the panic in 1893. What I mean is that the volume of business we secure for next season is very largely going to depend on the personal solicitation to secure each individual sale. The farmer is in such a frame of mind that he is not going out looking for new equipment, particularly of the latest design, especially when it comes to paying so much more than for the farm tools he has been accustomed to using.

"You must be fortified with full information that

will enable you to show conclusively why it is economy for him to buy this higher-priced equipment. You must also be prepared to show him that at the price he has got to sell his products for, even under the most favorable circumstances this coming year, he must produce them at the least possible cost.

"There is absolutely no other way out of it. When you read in the papers that the only way we are going to be able to increase the price on the very backbone crop of this country—corn—is to restrict the acreage for this coming year as much as 30 per cent., it is sufficient evidence to prove to any thinking man that no one is expecting a sudden return to higher prices on farm products.

"When men like President Howard, of the Farm Bureau Federation, make public statements that the day has arrived when the strictly grain farmer must change to a combination of grain and livestock farming if he is to survive in the future, it is high time we should sit up and take notice of the changes that are immediately before us in farm equipment.

"You dealers will be compelled not alone to handle farm implements, but must include barn equipment, lighting plants, water system, household power equipment and other things constantly being added to the line. The volume of business for this coming year is going to be maintained by the variety of things we sell rather than the quality of any of our articles.

"I hope you Wisconsin dealers will make the most of your opportunities and that the signs over your buildings will change from 'Implement Dealers' to 'Farm Equipment Dealers,' and thereby announce to the world that you are the men who are going to be the merchants in your communities for this new line of goods."



As the farmer's horizon has been widened by the use of the automobile, in a like manner his business advantages will be expanded by the use of the farm tractor and the truck.

System Is the Keynote of This Garage

Starting in 1910 With Very Little System or Equipment, Bull Bros. of Collingwood Have Built a Business That Is Selling Cars, Equipment and Repairs as Scientifically as the Big Department Stores.

"**A**UTOMOBILE merchandising and repairing in these days is a science, and the dealer who fails to recognize that fact is making a grave mistake. Hard work is a fine thing, and necessary to success in every business, but it must be backed up by something else. Something must be added to give it point and make it one hundred per cent. efficient. That something is knowledge, system, reliability, equipment, and the ability to analyze situations and people."

The speaker was "Earnie" Bull, of Bull Bros., proprietors of the Collingwood Garage, of Colling-

wood, Ont., and inasmuch as Bull Bros. have been in the automotive business in Collingwood since 1910, —starting with very little system or equipment,—and by perseverance and foresight have built up a remarkably successful business, and are operating as fine a garage of its size as there is in the Dominion, what "Earnie" or "Joe" Bull have to say about running a garage is worth listening to.

System is their keynote. There is no such thing as guesswork in the methods of the Bull Bros. Nothing is done in the entire establishment without written instructions. From the moment a job enters the garage, its history, so far as the Bull Bros. are concerned, begins, and when it is handed over to the owner the story of its repair progress can be read in black and white.

There is a story told every night, too, of each mechanic; the time clock performs this important

Layout of Garage

From the moment the visitor first approaches the Collingwood Garage he is impressed by the beauty of its design, its appropriateness and general air of cleanliness. And as he examines it more carefully

these impressions are deepened. Everything pleases the eye, from the stucco front, with its broad windows and appropriate decorations, to the well-tooled repair room.

The building was designed and a great deal of the work done by the Bull Bros. themselves. Much thought was expended on the layout, which, for a garage handling every kind of repair work, would be hard to improve. A glance at the plan of the building reproduced on this page will convince the reader of that fact.

The building is one storey, 155 x 44 feet, constructed of re-inforced concrete and with cement floor throughout. Entrance for cars is at the front through a broad driveway in the centre between the showroom and the stock and equipment department. This leads straight into the in-and-out garage, which has a storage capacity of fifty cars. Cars are parked

along the walls, and under no circumstances are they allowed to block the centre space.

Immediately behind the in-and-out department and car storage is the workshop. A large sliding door separates the two departments. At the rear of the building there are two annexes for the battery room and furnace room. The vulcanizing department occupies a space at the left of the workshop, with entrances from both the workshop and the car storage. The battery room is entered by a door leading from the vulcanizing department.

The entire building is exceptionally well lighted. Several large sky-lights and side windows are used for this purpose. The light is well distributed to every part of the building. Artificial lights are unnecessary in the day time. The car washing department is in the car storage. It is large and equipped with overhead piping and portable hose.

The showroom is very attractive. A large plate-glass window and glass door provide ample light. It has stucco walls and ceiling. The lower half of the walls are panelled with oak. The floor is terrazzo.

Wicker chairs and tables are provided for the comfort of visitors and palms and other plants give a pleasing and restful feeling to the eye.

The main office occupies a portion at the back of the salesroom and runs parallel with the front. A large oak sliding door connects with the driveway. This is only used for entrance and exit of new cars.

Repair Room Equipment

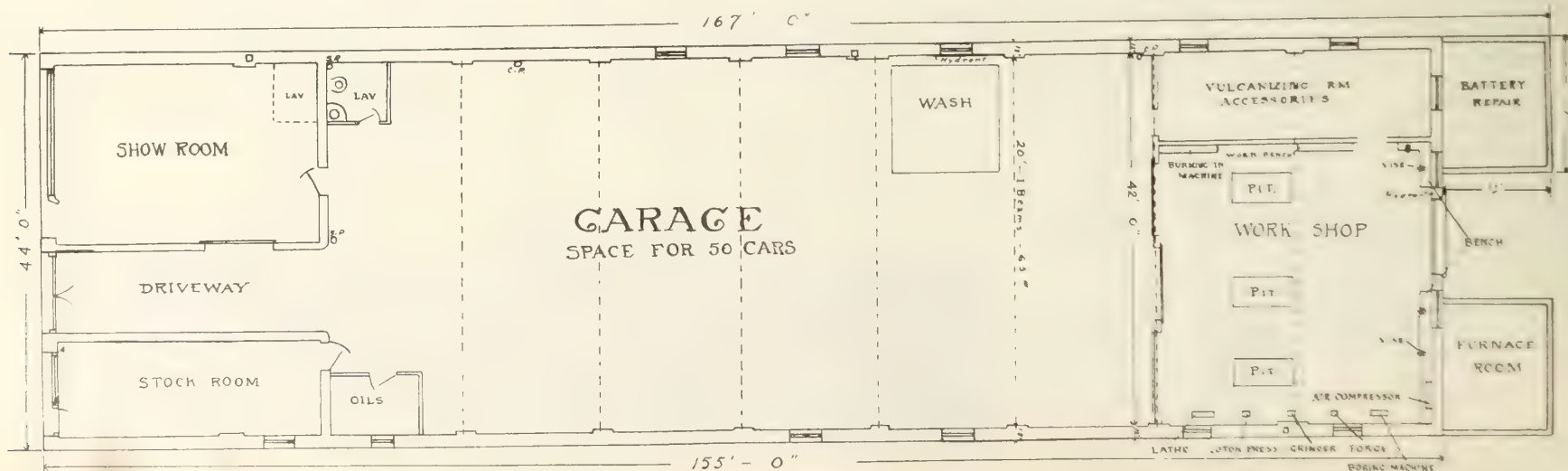
Bull Bros. have equipment to handle any repair job. Their workshop is in three sections, viz: general repair, vulcanizing, and battery service. Each department is fully equipped with the latest in tools, and laid out to the best advantage for speeding up the work.

The machines in the main room are as follows: Williams lathe, with a 14-inch swing and 6-foot bed, back geared and equipped for screw cutting; boring machine and cylinder borer—this tool does all drilling and will handle cylinders from 2½ to 5 inches in diameter; grinder, for tools and general grinding; portable forge; running-in and burning-in machine; brazing machine; oxy-acetylene welder; pneumatic riveter; portable electric drill; electric valve grinder; engine stand; crank shaft straighteners; connecting rod aligner; brake band riveter; transmission re-bushing jig; universal engine stand for any block; 20-ton Weaver press, with attachments for straightening front axles, and for pushing on and off generator gears; four rear axle stands for handling any axle; overhead track with triple block, self locking in any position; magnet charger for any magneto; Ford magneto charger, for charging without dismantling; coil tester; and a host of other shop tools such as piston vise, wheel pullers, full set of reamers—expansion, taper and straight, taps and dies, jacks, lifting irons, tire spreaders, etc., etc.

A two-cylinder Brunner compressor maintaining



The Collingwood Garage was planned and most of the work done by the proprietors themselves.



The layout of the Collingwood Garage is designed for handling a large amount of repair work with the least possible confusion.

a pressure of 125 pounds supplies air all over the building.

The vulcanizing outfit will handle any tire from 2½ to 5 inches. Two 3½, two 4, or two 4½ tires can be vulcanized at one time. An automatic electric tube plate is also provided. This device can take care of six tubes at once. Bull Bros. get enough tire repairing to warrant them keeping one man doing this work.

The battery room is equipped with a Wagner Generator capable of charging sixteen 6-volt batteries at one time. Batteries can either be charged in series or singly. Each battery is connected to the current stream by means of an individual switch. An automatic controller controls the current flowing from the generator to the batteries. In this manner there is no possibility of current being lost.

Other equipment in the battery room consists of a steam plant for dismantling batteries; water still for making distillate—this device is home-made and will distill five gallons a day; Weston volt tester, and discharge board.

Bull Bros. at present are specializing in Ford cars, trucks and tractors, and they are equipped for, and repair, all makes of cars. They also do their own motor re-winding, and have worked up a good outside business along this line. With the aid of a forge they do all their tool dressing and tempering required in their work shop.

Handling Repairs

Their system of handling repairs and keeping track of stock is interesting. When a car is brought in for repairs a card similar to the one reproduced here is made out in triplicate. Nothing but instructions from the owner signed by him, are put on this card. The Bull Bros. do not make an inspection themselves, they simply work from the owner's instructions. They believe this is the quickest way to handle incoming cars. "If we had to inspect all cars as they come in," said Mr. E. Bull, "it would necessitate several inspectors being employed and occasion considerable delay. Customers, too, would require to wait until we made our notations, and from our experience we have learned that waiting is the

last thing a customer wants or should be asked to do. The simplest way, therefore, to handle cars as they come in, is to take down the owner's instructions on the job card, have him put his signature to them, and later on as the job progresses, if anything else is discovered that requires attention, the owner can be notified and another job order made out and signed, covering the new operation."

The job card is in three sections. The two upper parts are exact duplicates and carry the instructions and the usual information as to owner's name, address, car number, job number, date promised, etc. The lower portion is the time and parts card. This

latter part, together with one of the duplicate cards carrying the instructions, remains in the office, the other card goes with the job.

Time Checked By Clock

When operations are begun on a job the mechanic makes out a time card bearing the owner's name, car number, job number, date and operation, and his own name or number. He then rings up on the time recorder the exact minute he commenced work on the job. Should he leave the job for any reason, he rings off. In this manner a definite record is kept of the mechanic's time on each job. Each night the time cards go to the office and are marked up against the job bearing the number corresponding to that on the time card.

All parts used are drawn from the stock room by a requisition signed by the mechanic. These are in duplicate; the original goes to the office and the duplicate remains in the stockroom and is entered up in the stockkeeper's books, thus a complete record of labor and parts used on each job is obtained.

Equipment Department

The automotive equipment department is a real "ask 'em to buy" establishment. It is in charge of a salesman who "anticipates the customer's needs," to use Mr. Bull's own words. This department is equipped with cash register, track ladder, spark plug tester, show cases, etc.

The parts are arranged in boxes built around the walls. Each box is named and numbered to correspond with the Ford price list. Starting at the bottom left of the rack from part 2508, the numbers proceed from left to right upwards, following closely the catalogue list. A track ladder is used for getting parts from the upper boxes. This ladder is similar to those used in shoe stores, etc. Any piece of equipment can be got on the minute.

Nobody but the stock salesman is permitted to handle, or draw parts, from the stock department. A sales slip, charge slip, or requisition, must cover every transaction. These slips and requisitions go to the office every night.

Perpetual Stock Inventory

A system of perpetual inventory is in use. By this system it is possible to take stock at any moment. It also enables the salesman to keep his stock in good shape and up to date. There is a card for every class of article carried. This card has printed on it at the top, the number, or size, and name of article, maximum or normal number for stock, and minimum. Underneath this there is a line showing the date, item, received, balance and delivered. Received means the number on hand required for normal stock; balance, is number on hand; and delivered, means number sold. The card reproduced here will explain how the system works. These cards are kept up to date, and while at the time it means considerable work, it more than pays for the trouble spent in a well-balanced and orderly stock. About \$10,000 worth of equipment is on hand at all times.

(Continued on Page 8)



This is an "Ask Em to Buy" Establishment. Parts are arranged in boxes and displayed in showcases. A system of perpetual inventory is in use.

Collingwood Garage Repair Order and Instruction Card No. 454									
TERMS STRICTLY CASH									
NAME <i>W. J. Young</i>		ADDRESS <i>Collingwood</i>							
DATE <i>7/1/1922</i>		PHONE							
MAKE AND MODEL <i>Ford</i>	LICENSE NO. <i>178-880</i>	DATE PROMISED <i>Wednesday 4/18/22</i>		FOREMAN O.K.					
INSTRUCTIONS ONLY TO BE ATTACHED TO CAR									
<i>Clean Carbon & Lead Valves</i>									
<i>Adjust Steering Gear</i>									
<i>Overhaul Steer</i>									
<div style="display: flex; justify-content: space-between;"> <div> <p>NOTICE: Do Only the Made Out</p> <p>Work Auth. <i>Pistons</i></p> </div> <div> <p>Unit</p> <p>Max. 36</p> <p>Min. 28</p> <p>4</p> </div> </div>									
<div style="display: flex; justify-content: space-between;"> <div> <p>Lives at</p> <p>West—Sec</p> <p>East—Lot</p> </div> <div> <p>Twp.</p> <p>Con.</p> </div> <div> <p>Rge.</p> <p>Twp.</p> </div> </div>									
<p>Name</p> <p>Street & No.</p> <p>Financial Condition</p> <p>Occupation</p>									
<p>Does he own a</p> <p>truck? Make and Model</p> <p>car? Make and Model</p> <p>tractor? Make and Model</p>									
Moved to									
TIME AND PARTS ONLY No. 454									
QUAN	PART NO	ARTICLE	AMOUNT	MECH	NO	START STOP	LAPSED TIME	CLOCK RECORD	
2	2710		50					S	
2	2713	Pair	71					B	
2	2714		8					S	
2	2718		40					B	
			1.68					S	
		Plus 2%	8					B	
		Plus 2%	5					S	
			1.81					B	
		Overhaul & adjust Steer	6.75					S	
								B	
								S	
TOTAL HOURS ON JOB <i>4 hrs.</i>						TOTAL LABOR ONLY <i>6.75</i>			
DATE <i>7-5-22</i> AMOUNT						MATERIAL <i>1.81</i>			
OFFICE O.K.						TOTAL AMOUNT <i>8.56</i>			

Some of the forms which help Bull Bros. to keep track of their business.

Stop Leaks In the Accounting Department

Garage Men Have Always Worried Over the Possibility and Probability of Errors Occurring In the Service and Accounting Departments. This Article Deals With Some Time and Labor Saving Equipment Designed To Improve Business Records.

MOST dealers are conscious of the fact that if they want efficiency in the service department they must have good equipment. They know that work can be speeded up, can be done better and more to customer's satisfaction with the proper tools than without them. As we have said, most dealers are convinced of that fact, but how many con-

minutes are lost, you are actually losing real money. In a great many garages and service stations in Canada to-day the only method of recording time on jobs is by use of pencil and paper. This is not reliable, as papers can be lost, figures blurred until they are illegible, and time sheets can be "fixed" by dishonest mechanics.

The proper way to keep accurate check of time and labor is by some sort of recording clock. In the best conducted garages to-day every operator in the repair room is checked by the clock. No mechanic is permitted to start on a job without first ringing up on the recorder. And when the job is completed, or he has to leave it to start on something more urgent, he rings off and immediately records the starting of the new job, and so on.

The kind of card used varies according to the caprice or requirements of the system in use. Some dealers use an individual job card while others prefer a job card with several jobs for the day.

Fig. 1 shows one style of individual job card used by a dealer. As will be noted the time started and stopped is recorded, the elapsed time, the rate, the cost, the job number, the operator, the car number, date, and mechanic's name. Thus at the end of the day the office has a definite record of the mechanic's activities and the time to be checked against a certain job.

Customer Wants To Know What He Is Paying For

The advantages of keeping accurate count of time are manifold. Every mechanic is his own time keeper, checking up his own time and charging it at the same moment to a definite job. The repair man also with such a system has a means of separating his productive from non-productive labor. It also provides a record which will serve as a convincing proof to customers in cases of dispute.

This last point is very important; customers are becoming more exacting and want to see in black and white just what they are paying for. The dealer who can show at a moment's notice the time history of a job from the moment operations begin until delivery is effected is going a long way to gain his customers' confidence.

The garageman is selling the product of his labor, and he must charge for every productive minute of this labor, just the same as a grocer must charge for every item of his merchandise. The service man cannot charge his customer correctly unless he knows how much labor was used.

Would you deal with a grocer who did not use some system of recording your purchases, item by item, and charging you for them, but who should, instead, at the end of the month make a guess at what you had bought and then charge you for that? Not for a minute. You want to see the items enumerated and correctly priced. You don't object to paying the right price for the article you purchased.

Your customer feels exactly like that in dealing with you. He doesn't object to paying for something when he knows he got that something.

The individual efficiency of the employee and the efficiency of the management are both important factors in reducing production costs in the service station, but unless the element of time is taken care of properly, mechanical efficiency is of little avail in reducing the cost of production.

Efficiency in the Office

It is a big job in the average garage to put out statements at the end of each month for active accounts, without the assistance of a modern figuring or adding machine, the garage proprietor and his accountant have usually to work well into the small hours of the morning totalling statements. And after all the hard work expended there is no guarantee that the statements are in every case without error.

Automotive proprietors are becoming convinced more and more of the necessity of quick, automatic and accurate methods in their accounting departments. It does not matter what size the garage is, whether it employs two men or twenty, whether the stock clerk, shop clerk and bookkeeper be comprised in one individual, or whether there be a separate man for each job, in each case some adequate system must be installed, and no matter what method is in use it can be simplified and improved by modern accounting machines.



Are you able to send out a statement like the one shown at top of this picture and back it up with a complete time history, as shown by the lower card?

sider, and for the same reasons, that efficiency in the office is just as important?

The function of modern equipment is to increase the profits by decreasing the cost of the work. There is some clerical work to be done in connection with every business and it is possible to get this work done faster and better by using a machine than can be done manually.

There are several machines on the market for taking guess work out of the office system, for speeding up the work there, and protecting the dealer from mistakes, inefficiency and even forgery. In this article we will deal with time recorders, adding machines and check protectors.

Business men always have worried over the possibility, and probability of errors occurring in their system of keeping track of time, labor and money.

You Are Buying and Selling Time Every Day

In the servicing of cars, trucks and tractors, time and labor are two very important items and the profits largely depend upon the check made on them. You are buying time every day from your employees and selling it to customers on jobs. If an hour of time represents, say, a dollar in wages, it is of vital importance that you get 100 cents for that dollar. So many minutes represent so many cents and if

NAME	No.	DATE
Murray Kearns.	4	Feb 24 1919
Form No. 243		
CAR NO. 44584	COST	RATE
Motor		\$
Ignition		B
Carburetor	70	\$ 68 1/2 101
Radiator		B
Fenders		S
Axles		B
Brakes		S
Doors		B
Body		S
Starting System		B
Springs		S
Oiling		B
Wheels		S
Misc.		B
70	68 1/2	101
TOTALS		

Mechanic Brown

Fig. 1—Shows Time Card used by some dealers.

Not long ago the writer was interviewing the proprietor of a very fine garage. This garage had everything in the shape of labor-saving equipment, both in the repair shop and in the accounting department. The equipment in the office consisted of an adding machine, cash register, check protector, typewriter and the usual office accessories, such as filing cabinets, safe, etc. In the course of the interview we asked this dealer what value he placed on his office machines. He replied:

"There isn't a machine in this office I could get along without. Previous to installing them we thought we had a pretty fair accounting system. We had a trained bookkeeper, and all the necessary books and forms; we issued monthly statements and balanced our accounts regularly. We had considerable trouble at the end of the month getting out our statements but we worked hard and stayed late for several nights and managed to get them out fairly well on time, although sometimes we were behind time. However we have since learned the value of modern office equipment. We have increased our efficiency, simplified our accounting, and eliminated errors with a figuring machine.

"We have protected ourselves against forgery and provided a good means of publicity with our check protector."

The dealer by the aid of his machine is able to

garage accountant can catch errors as they occur, and eliminate the possibility of them playing havoc with the trial balance and causing considerable checking back at the end of the month. This is where the adding machine proves a great help in the garage.

In many small garages where the proprietor must necessarily be manager, stock keeper and bookkeeper there is considerable trouble and anxiety over the keeping of accounts. It may sometimes be possible to find a man who is equally expert in all departments but if such is found he is the exception.

A man can be a first class mechanic, but the time he must spend at his trade to make himself such practically precludes him from studying sufficiently to enable him to master the art of keeping accounts. True he can with pad and pencil get along somehow but such a system, or lack of system, is very dangerous.

In order to be successful it is generally accepted by business men that a dealer should have some means of accurately analyzing his business in order to see what it is costing him to run it. Accurate bookkeeping is the foundation of good business methods because it furnishes the basis for wise management. If records are kept accurately, they will point out leaks and enable the dealer to adjust his selling expenses so that profits will be actual at all times rather than imaginary.

With the aid of the office equipment now on the market any mechanic no matter what he knows or doesn't know about bookkeeping can keep his own accounts. He can add, subtract, or multiply any number or arrangement of figures and be assured that they are accurate. He can each night check up the daily cash receipts and time records and post them to the customer's account, at the same time automatically extending the balance with each posting.

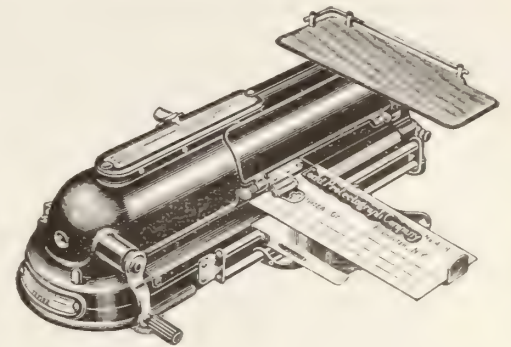
Protect Your Bank Account

Practically every bank and business office to-day have deemed it necessary to install some system whereby all checks marked or issued by them are protected against forgery. Garagemen too are feeling the necessity of safeguarding themselves against the check raiser and are adding protecting machines to their office equipment.



day and unless the dealer has some means of marking them so that they cannot be tampered with he is putting his bank account at the mercy of the first crook who comes along.

A check protector eliminates any such danger. It guarantees that every check you issue will be cashed for the amount you authorize and no more. The machine cuts each character and figure into tiny slits and forces acid proof ink through and through the paper under great pressure, and prints the amount in two colors. The danger of forgery in this



A type of check protector used largely in garages.

manner is reduced to the minimum, if not entirely eradicated.

Then again a neatly printed check creates a good impression in the minds of those who see it. It gives an air of businesslike methods which in turn make the payee favorably disposed towards you. The impression the manufacturer or banker gets of you from your check may also have a direct influence on your credit.

Getting Publicity From Your Bank Check

Has it ever occurred to you that your check can become one of the finest means of direct advertising? It can be made to tell your business as boldly as your letterhead, invoice, label, or sales letter. You are not getting all that is coming to you when your check goes out carrying no other message than your authorized signature. If you are operating the "Central Garage" or "City Service Station," selling and repairing cars, trucks, and tractors, say so at the top of your check. There is no reason why you should continue to use the bank's supplied forms. You wouldn't write your correspondence or make out your bills on the bank's letterheads would you? Then make your check tell your story.

The more checks you use the better opportunity you have for good advertising. Even if the payee was the only man who saw your check, and he didn't buy from you, directly, it is a good thing for you to have as many people as possible know about your business.

There are other machines on the market designed to increase efficiency in the office but space does not permit us going into the matter in further detail here. If we have impressed on the dealer the necessity of safeguarding himself and his customers against leaks in the repair shop and errors in the office this article has fulfilled its purpose.

GENERAL MOTORS MAKES BIG SHIPMENT

SHIPMENT of a solid train of sixty-one cars laden with automobiles en route to the United Kingdom from the Oshawa plants of General Motors Corporation recently is said to have been the largest single export shipment ever started from a Canadian automobile factory.

The shipment is made via Canadian National lines to St. John, whence the cars will be loaded on the Canadian Government Merchant Marine steamer Canadian Conqueror. This 8,500-ton vessel will have most of its cargo space taken by the General Motors shipment.

The export shipments from Oshawa are averaging 100 cars per day to all parts of the world.

FORD HAS RAISED DEALER DISCOUNTS

DETROIT, May 3.—The Ford Motor Co. has increased its dealers' discounts, applicable to all Ford dealers, on cars, trucks and tractors.

The discount on cars and trucks has been increased from 17½ per cent. to 20 per cent.

The discount on tractors is now 25 per cent. instead of the former discounts of 17½ and 5 per cent.

Charges for day		
Present Balances		
24.50	*	250
9.75		300
4.00		300
2.25		350
1.00		200
3.75		150
2.00		400
6.75		100
4.50		125
3.00		125
1.25		250
1.25		100
1.00		150
27.25		300
75		175
4.25		375
5.00		100
1.50		125
3.00		450
4.50		200
3.00		125
3.50		125
1.75		100
3.00		175
3.25		75
1.00		125
5.50		400
25.50		150
3.00		100
1.00		425
2.00		6.75
1.50		27.00
127.75*		267.50*
139.75*		
Present Balances	267.50	
Previous	127.75	
Daily Balance	139.75	

This Toronto dealer each night is able to prove to his own satisfaction that all charges have been correctly posted. By listing the amounts on the charge tickets, a total is arrived at against which to check. After posting he runs through the statement-ledger and lists the balance of each amount and totals them, then by subtracting the previous day's total he obtains the amount which he has actually posted. The cut on the left illustrates this.

prove to his own satisfaction that all charges have been correctly posted each day. By listing the amounts appearing on the charge tickets, a total is automatically arrived at against which to check. After posting has been completed he runs through the statement-ledger and lists the balance of each amount, and totals them, then by subtracting the previous day's total he obtains the amount which he has actually posted. If this amount agrees with the total taken from the charge tickets, he has proved that all amounts have been correctly posted.

Catching Errors As They Occur

The advantage of such a proof is that it localizes and stops errors. By proving his work every day the

The dealer who is careful to stop up all leaks in his repair room and prevent errors from occurring in the accounting department should be the first to see the importance of protecting his bank account. You never can tell once you sign a check, into whose hands it may fall. You may issue checks to "responsible parties only," but how do you know that the check will reach the responsible party?

The most valuable thing you possess in a business way is your signature. It is easy to remove the name of the payee from a check and substitute another name, or "Bearer." Also to change the amount, leaving the genuine signature—which is the only thing on the check that counts.

Checks are being raised by clever crooks every

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Promote Power Farming

ONE OF the most interesting developments in the interest of power farming which has taken place in recent times is the formation of the National Institute of Progressive Farming. This organization, whose headquarters are in Chicago has succeeded the Power Farming Bureau and will "collect and distribute through bulletins, lectures, and the public press, information upon the development and improvement of methods of farming, reducing the cost of production of farm products, the use of mechanical power, etc."

The organization has the support of, and includes in its executive, representatives of the farm machinery manufacturers and kindred lines, and a number of elements among farm organizations. The director in charge of the work is Guy H. Hall, formerly secretary of the Kansas City Tractor Club, and manager of several Kansas City tractor shows. The details of the institute's program have not yet been given out but there is every indication that the plan contains possibilities of much good for the farming communities of the country and consequently for the farm machinery industry.

Business is Improving

THAT A GRADUAL improvement in business conditions is under way is to be seen from a reading of the wholesale price index, one of the most important barometers of commercial and financial weather. This says that the era of disastrous price deflations is past.

The farming group is a striking example of the tendency to better things. This group reached its lowest level June 1921, and touched the same point again in December. With the turn of the year an upward movement began which has steadily gained ground since. While it is perhaps too early to determine what effect the rise in prices of farm products since the first of the year has had on the automotive and farm machinery industries, it can safely be said that the outlook for future business is decidedly favorable.

There is a change in the farmer's psychology, and a tendency to buy is noticeable. Dealers throughout the country are receiving numerous inquiries from farmers which in many cases are resulting in sales.

Boosting Tractors

AN ANALYSIS of the subject shows that we have several kinds of "Boosters" in connection with the tractor and power farming industry, says J. B. Bartholomew, president of the Avery Co.

Boosting which consists of "knocking" every other machine but your own, by which practice you gain a self-satisfied jolly that gives that false sense of superiority, but which your competitors fail to recognize, and too often you overlook the depressed effect that leaves upon a prospective buyer—especially one that does not look upon your particular machine with too much favor—under which circumstances, if you are able to convince him that all other machines are inferior, he is apt to conclude that yours is too.

Boosting of a kind which persuades everybody that tractor and power farming is a better, cheaper and quicker method of doing farm work, is a protection to the industry, and immediately brings the prospective buying mind to the point of becoming seriously interested.

Boosting where an organization of competitive manufacturers put on shows and demonstrations calculated to educate the public, and prove the meritorious work that these power machines are capable of doing, tends to bring the prospective mind one step beyond the point of interest and to the point of selecting his favorite.

Boosting wherein all reference to competitive machinery is dropped and a thorough and competent explanation of the design and construction, the materials and workmanship, the advantages of operating your own goods, and what they will do to promote cheaper production of crops by better tillage and the saving of time and doing the work at the right time (which is the essence of farming), how they will actually save money for the owners and users, all tends to bring about favorable decision and the resolve to buy.

What is a Successful Salesman?

THE successful salesman must be a fighter. He must really have in him the desire to lock horns intellectually with the prospect. He must really have a love of meeting competition and overcoming obstacles. Salesmanship is an intellectual battle. The salesman should be just as anxious to meet good competition as he is to meet and win in a game of tennis or a session at billiards, says a pamphlet prepared for sales staff of the E'dridge Buick Co., Seattle.

Competition should not be discouraging but exhilarating and inspiring, because without competition there would be no need for the profession.

The most important service that a salesman is called upon to perform is the giving of information to the prospective purchaser of some article of merchandise. In doing this, he is rendering very valuable service. If the buyer really knew everything about every article of merchandise there would be no need for a salesman.

As salesmanship is one profession that offers almost unlimited possibilities, here are a few of the qualifications requisite to good salesmanship:

1. *Know your goods.*—Many salesmen have made wonderful selling successes without knowing a great deal about the article they were selling. Yet, on the other hand, the probabilities are that this individual success would have been even greater had he had an intimate knowledge of his wares. As the first duty of a salesman is to convey information to the prospective purchaser about the article he has for sale, it is very essential that he have a very intimate knowledge about that article. So the first thing to do is to know better than anybody else in the world the article you are selling.

2. *Know how to talk.*—Knowledge is of little value unless the salesman is able to convey it to the people with whom he comes in contact. So, regardless of the amount of knowledge he has, unless he is able to successfully distribute that knowledge, it will help him but slightly. The commercial value of what we know is dependent upon our ability to distribute and use it.

3. *General knowledge of business principles.* The salesman should have a general knowledge of business principles so that he will be in a position to give the prospect real information about the different phases of business generally. He should also be able to pass such information to the prospect as will help him in his business. The salesman in calling on the various people in the same line of business as his prospect, if he is a wide awake salesman, is bound to pick up information which will be of benefit to the prospect, and at the same time not pass out business secrets. The difference between the order taker and a salesman is the ability and capability of giving information and advice.

4. *Knowledge of competitors.*—The salesman should have a working knowledge not only of the house which he represents but also a knowledge of the competitive houses.

5. *Ability to talk something besides shop.* Business today is not a cold blooded proposition. It behooves the salesman to have information about public affairs and things generally, so that he is in a position to talk interestingly to the prospect. Knowledge of things generally will in a great many cases enable the salesman to get under the skin, so to speak, of the prospect.

6. *Ability to diagnose a customer.*—Before a salesman can administer to the needs of a prospect he must be able to make a diagnosis. It is necessary to be able to size up the prospect in order to get an intelligent idea of the kind of arguments that will convince him.

7. *Good nature.*—Some authors on salesmanship say that good nature or a smiling countenance will do more to win the heart of a prospect than anything else. The manner in which information and advice will be received depends largely upon the attitude of the prospect toward the salesman.

8. *It is necessary for a salesman to play a double part.*—Do not get the wrong idea in regard to "double part." The salesman should at all times work for the benefit of the house, at the same time, bearing in mind that a permanent business can only be built up by giving 100 per cent value for the merchandise sold to the prospect. Every transaction should be mutually beneficial. It is the salesman's duty to at all times consider the interests of the customer, and at the same time be thoroughly cognizant of his duty to the house. Never try to sell a customer something that you are satisfied is not the right thing for him to have for the work he is contemplating having it do.

System Is the Keynote of This Garage

(Continued from Page 5)

Considerable importance is attached to a proper display of automotive equipment. The window is well fitted up with a hardwood floor and mirror back, and much care is taken in arranging the goods. Displays are seasonable and are changed each week. A plate glass show case in the stock room backs up the window display and asks 'em to buy. The customer who gets away from this stock room without purchasing something is going some. No attempt is made to coerce the customer, but every effort is made to sell him something the salesman thinks he should have by solicitation, persuasion and display.

Advertising

Bull Bros. sold 103 cars, and did about \$14,000 worth of repairs last year. This was accomplished by personal canvass, advertising in the local papers, sales letters, telephone, and manufacturers' sales-helpers. Special service letters are sent out in the fall soliciting winter business.

In order that there be no waste effort on the part of the salesmen, a carefully selected prospect list is compiled. For each prospect a card is made out and filed. The file is arranged by lines, concessions, etc., and names in each district filed alphabetically. In a regular canvass each district is worked methodically. Everybody is called upon and a full report made out. The prospect file is in constant use, and carries full and definite information concerning every possible buyer.

Bull Bros. attach much importance to appearances. They believe in being proprietors and are to be found any day in the showroom or office dressed neatly, ready to receive the most particular customer. The mechanics are not seen at the front except on rare occasions. The customer sees nothing but order and cleanliness.

The office has all the modern equipment to take care of a business of this nature. It includes an adding machine, duplicator, typewriter, cheque protector, filing cabinets, telephone, safe, and just outside the door in the car storage, a time recorder.

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You Can Make Accessories More Profitable

The Oftener You Turn Your Stock Over the Greater Will Be Your Profits. The Better the Quality of Your Goods the More Readily Will They Move. Good Equipment Will Sell Much Quicker If Properly Displayed and Merchandised.

AUTOMOTIVE dealers are gradually coming to realize that the surest way to obtain a fair profit is to develop a rapid turn-over. Profit for a whole year depends more upon the number of times the margin of profit on each article is taken than upon the size of the margin.

A grocer, for example, may make only 2 per cent. on each article he sells but he may turn his stock ten times a year. He will have an annual profit of 20 per cent. on the capital he has invested in merchandise. On the other hand, a small dealer in automotive equipment may have a margin of 20 per cent. between the cost and the selling price of his stock, but if he is carrying articles of inferior quality on his shelves, his annual net profit may be less than 20 per cent. simply because he may not succeed in making a single turn-over. The same is true when a dealer undertakes the agency for an automobile or tractor which is, for some reason, unpopular.

The cost of doing business may be spoken of as 20 per cent. for example. A common notion is that this 20 per cent. applies to the individual articles sold in the store, but really it is simply the average cost of selling the many different articles in stock. Dealers often believe that articles sold on margins less than a certain amount, say 20 per cent. are sold at a loss; and that other articles sold on very much wider margins are the profit-makers. Often it is thought that the narrow margin articles are necessary evils, and that the profits made on wide margin articles make up for the losses on the others. This is a mistaken idea. As a matter of fact, articles offering very wide margins may actually be sold at a loss, and articles sold at margins lower than the average cost of the dealer's business, as a whole, may be real profit-earners.

The rate of turn-over on individual articles affects the cost of selling these different articles in different ways. Some items of selling expense depend mainly on the stock of an article carried while other items of expense are due to the volume of sales of the individual articles. Such items as rent, light, heat, depreciation, and interest on capital depend on the amount of stock carried. Salesmen's salaries, delivery expenses, wrapping paper, twine, and losses for bad debts vary according to the volume of sales.

As selling expenses are usually figured as a percentage of sales, those expenses which depend on the amount of stock carried are affected by the rate of turn-over. Expenses which depend upon the volume of sales, are affected very little by the rate of turn-over.

Suppose a dealer carries \$100 worth of each of two different makes of tires, but the sales of the one are \$400 (four turn-overs) and the sales of the other are only \$100 (one turn-over). Each takes up the same space and the rent charged to each is \$5.00 per year. But reckoned on sales \$5.00 is 5 per cent. of the sales of one kind of tire, whereas it is only 1¼ per cent. of the sales of the other which turns over four times. In other words when figured as a percentage of sales the rental cost of the tire which sells well is much lower than in the case of the difficult one to sell.

Of course, the cost of selling various articles does not depend altogether on the rate of turn-over. A good deal depends on the amount of time required by salesmen to make the sales and, often, the quality of salesmanship counts. It takes much less effort to sell gasoline than to sell automobiles or tractors.

Two Things to Study

There are two things, therefore, that the dealer in automotive equipment should study and watch carefully—first, his rapidity of turn-over and, second, the amount and quality of salesmanship necessary to create the turn-over.

The rapidity of turn-over will depend very much on the quality of the deal-

By D. R. COWAN

er's stock. If low quality equipment, or automobiles of unproven worth, are the articles which the dealer has to sell, either his turn-over will be slow or he will have to hire a sales staff to put on a superhuman sales campaign which will eat up all the profits, no matter how large the margin on each article may be.

Obviously, if a stock of merchandise is to be kept turning over at regular intervals it is to the advantage of the retailer to have a stock control system in operation in his place of business which will afford him protection against the possibility of carrying any goods which may become

HIGH SPOTS OF THE ARTICLE

The rate of turnover on individual articles affects the cost of selling these different articles, and determines the ultimate profits.

First-class goods will sell quicker than goods of inferior quality.

The dealer who aims at rapid turnover with increased profits should have a stock control system in operation—should advertise and display his goods to the best advantage—should be a merchandiser who anticipates the customer's needs.

dead stock. Such a system will also be very effective in reducing the possibility of lost sales through articles for which there is a regular demand being out of stock.

Dead stock not only means a loss of profits but often involves a considerable amount of capital from which there is no revenue, and which possibly will eventually have to be written off as a loss. Not having goods in stock with which to supply a customer's requirements may not only mean the loss of the immediate sale but may also jeopardize future patronage.

Not only can these two losses be fairly well controlled by a comparatively simple stock keeping system, but a loss to the dealer through leakages will also be reduced to a minimum.

Stock Record System

A very inexpensive and efficient stock record system consists of cards ruled on top to show the name and style of the article and five columns for the following information, viz. Date of purchase or sale; name of firm from whom goods were purchased; requisition, sales voucher or shop order number; the quantity bought, sold or used on work in the repair shop; and lastly the quantity in stock.

A system of this kind will inform the dealer at a glance how many of each article he sells during a month, in which month sales are the highest and in which they are lowest, thus enabling him at all times to estimate with a good degree of accuracy the quantity of any given article the first-

of-the-month order to the supply house should call for.

The dealer will be guided by these cards against buying goods which are very slow moving, and will, after this system has been in operation a short time, be able to determine the maximum and minimum quantity of each article necessary to meet the demands of a month's requirements.

Where such a system is operated there is very little loss sustained through an over supply of goods being ordered with a consequent lot of dead stock to be carried. Knowing just what quantities to buy will enable the dealer to take advantage of the most economical freight and express charges.

The dealers who are making money to-day are those who sell automobiles, tires and accessories of proven quality.

This quality must also be known to the public, and the most desirable manufacturers from whom to buy supplies are those who are supporting their dealers by refusing to sell at wholesale prices to consumers and by good advertising. The manufacturer who will not sell at a discount to the consumer is safeguarding the sales turn-over which the dealer has built up, and that manufacturer deserves the business. Likewise the dealer benefits because of greater turn-over and lower expenses for salesmen when the manufacturer advertises consistently.

Advertising and Display

Too much importance can not be attached to the value of advertising as a business building medium. Proof of this is found in the extensive advertising campaigns carried on by the National organizations which owe their prosperity to all or most of the well-known advertising media.

Local dealers could make their own sales efforts very much more effective at small cost if they would unite for the purpose of advertising locally.

Newspapers and magazines find their way regularly into most homes and a message to prospective purchasers through such channels connects the dealer and his business with the people whose custom he is anxious to have.

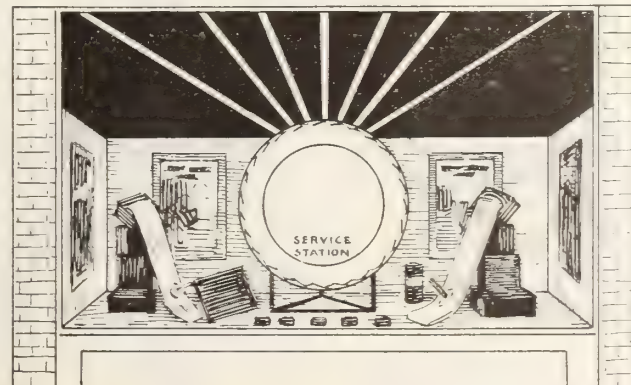
The consumer reads about the qualities of certain articles in the local newspaper and is less argumentative about those qualities than if a salesman approaches him. This will reduce the dealer's expenses for sales effort. It will prevent a large amount of local business from slipping away to the mail order houses. It is known that at least one large mail order house makes a study of the advertising done by local merchants and then concentrates its advertising and sales effort upon those localities where local advertising is weak or entirely lacking.

Another very good way in which to increase sales is to have the articles for sale well displayed. Clean and attractively dressed windows and show cases will always catch the eye of the consuming public and articles thus displayed will often suggest their value to those people who are interested in the kind of merchandise in which a retailer deals. As an illustration of the difference in the untidy window and the orderly sales-producing one, the accompanying cut is interesting.

Finally, the dealer should not forget that automotive equipment is very profitable and should be stocked for several reasons. It takes up comparatively little space, and hence does not increase the dealer's expenses for rent, light, heat, etc. It can be sold by the salesmen during the

short periods when large deals cannot be made.

Many dealers in automotive equipment have found it profitable to have a show case containing automobile and tire accessories handy to the gasoline pump so that car owners, while waiting to have a supply of gasoline put into their tanks, will often be induced by such a display to make a purchase of some article which, but for the display, he would not have bought.



As an illustration of the difference in the untidy window and the orderly sales-producing one, this cut is interesting.

Meeting Mail Order House Competition

Every Dealer Who Sells to the Farmer Has to Compete More or Less With the Mail Order House. To Combat This Opposition the Dealer Should Fortify Himself With a Knowledge of What He Can Offer That Cannot Be Secured From a Mail Order House, and Then Make These Facts Known to His Trade

THE UNDERLYING reason why there never yet has been a successful mail order farm machinery business is the impossibility of giving service by mail. Hardware, clothing, furniture, and groceries can be marketed with reasonable success by securing orders through the mail, but so long as machinery breaks down in the field and requires speedy repairs, the wise farmer will realize that he must trade where he can receive such service with the least possible delay.

This is one of the limitations that prevents the mail order house from entering the implement business on anything like a big scale. They can, of course, handle the smaller tools of the garden variety—tools that require little attention—but the present-day purchaser of a binder, manure spreader, or grain drill wants to know that in time of trouble he can call for help and get it in a matter of hours, not weeks.

The dealer who realizes the part he can play in keeping the farmers' machines continuously at work and shapes his business accordingly, will not suffer from mail order competition to any marked extent. All it requires is a little intensive study of the situation. Sometimes the farmer does not think far enough ahead when he decides to buy a farm machine and considers price alone. Of course, if this be the case, he is likely to buy from a mail order house on the basis of the price difference. The chances are he would not do it if a few facts were called to his attention.

It is well for the dealer to fortify himself with a knowledge of what he can offer the farmer that cannot be secured from a mail order house and then make these facts known to his trade whenever opportunity permits.

In ordering a machine by mail, the customer is running a big risk of getting an implement not suited to his particular section of the country. The principal aim of the mail order house is to sell, and very little attention is paid to the suitability of types. In fact, the average mail order house has no one who is capable of knowing the needs of any particular county. If a farmer in Ontario orders a plow, he is likely to get exactly the same plow that would be sent to a farmer in Saskatchewan. Now, any farmer knows there is no implement he uses that requires more accurate setting than his plow. J. McGregor Smith, of Edmonton, Alta., University, says that a plow is harder to set correctly than a binder. If this be true, think of the risk a farmer runs of getting an unsatisfactory tool—one that will not handle his soil in the correct manner.

The exclusive farm machine companies maintain large experimental forces whose sole duty it is to check up constantly in various parts of the country to see if the machines are being built in accordance with local requirements. No effort is spared to give each section the type of machine that will handle the work to the user's satisfaction. Contrast this painstaking care with the mail order house, which simply takes the output of some rundown factory and places it on the market through the medium of the large catalogue. In many cases, the men who handle the farm implement sales for the mail order house have never been on a farm, know nothing of farm operations, and would be wholly at a loss if any technical questions were put to them.

No farmer will order goods from a company doing business on such a basis if he knows about it—and it is the dealer's duty to see that he is informed.

Ordering From Pictures Dangerous

Another factor which follows along the same line of reasoning as the foregoing is the danger of ordering from pictures. No flat printed page will tell a prospective purchaser much about the quality he may expect. Even when the pictures are reproduced from actual photographs, it is impossible to determine the relative strength of the various parts, the kind of material used, and the ease with which the

By R. S. WILLIAMS

machine operates. The whole responsibility for ordering must be taken upon no more tangible evidence than the picture and its accompanying text matter.

On the other hand, when the farmer steps into the sample room of an up-to-date local dealer, he can walk right to the particular machine he is considering, operate the levers, test the strength of the parts, and satisfy himself that the implement will meet his requirements. No amount of sales talk or pretty pictures will compensate for this physical examination that frequently determines whether the machine is desirable.

Copy Departmental Store Methods

To realize the value of clean, well-kept samples, observe any big department store in a city. Note the great quantities of money and time spent in dressing up windows to attract the attention of the hurrying passerby. Window trimmers, who command good salaries, are hired to do nothing else but arrange merchandise in windows. Why is it done? Because the owners of these successful enterprises know from long experience that neat sample displays attract favorable attention, and further, that first impressions are often likely to prove lasting. If it pays to display goods costing but a few cents a yard, or shoes costing a few dollars a pair, isn't it reasonable to suppose that when a farmer is deciding to invest a hundred dollars or more in a farm machine, he will welcome an opportunity to look it over before he buys?

Not all dealers, of course, can have a large, light sample room. Space within the building is too limited to permit many machines to be set up. There are few dealers, however, who cannot put up seasonable machines and replace them later with others. All this takes some work, of course, but if we are in business to succeed and have our heart and soul in it, no reasonable effort is too great to insure getting our share of the trade.

Up in North Battleford, Sask., one of the farm machinery dealers solved the problem of sample display by building a covered porch on two sides of his establishment. He was not in position to put up a huge, brick front with plate glass windows therein, but he did not permit that fact to rob him of the value of a sample room. He built a floor 16 feet wide on two sides of his building and roofed it over, leaving the sides open. The total cost was slight and the resulting covered space permits a large and well-filled sample display. To get into his office, the farmer must pass through an array of bright, shiny farm machinery. The effect is good because many a visitor is reminded of some need, and the germ of a future sale thus stimulated.

Where it is possible to do so, place an advertising rack or table nearby and keep it filled with attractive catalogues and folders describing machines sold. Stamp or print your firm name on each piece of literature so that when a farmer takes home a catalogue and reads it some time later, he not only gets the message which is conveyed by the pictures and text, but also is reminded where he can secure the machine. These little things take so little time, yet mean so much to the total volume that no dealer can afford to disregard them.

Speedy Service Important Weapon

Then there is the element of speedy repair and expert service which, after all, is the most potent factor in favor of the local dealer if he will but take advantage of it. The mail order house, located at great distance from the buyer, makes no attempt or claim to render quick repair service in case of need.

The best machine in the world will wear under the hard, strenuous work encountered in the field. Occasionally parts will break and then there is the delay while awaiting the new part. More often than not a machine breaks when hours mean dollars. A

breakdown in the midst of seeding, harvest, or threshing is serious and if the repair part is not available immediately, the loss to the farmer may run into big money—sometimes more than the entire cost of the machine. Ordering repairs for mail order implements is usually a matter of several days and frequently weeks. The order usually has to be relayed to the factory and should the wrong piece be sent, the delay is even greater. No farmer would willingly put his head into a trap of this kind, but sometimes when there is a considerable difference in the initial price, the man does not look far enough ahead to see that his first saving is more than likely to be eaten up in long waits for parts to be sent from some far distant town.

Therefore, the dealer should make capital of the fact that a machine purchased from him and backed up by his own repair stock, plus the nearby branch house of the original manufacturer, insures the owner against undue delay in case of breakdown. We might even grant for the sake of argument that there is no difference in quality between the two machines, yet the after-sale repair and expert service afforded by the dealer is a factor that makes the locally-purchased article much the safer investment. Of course, the dealer must make this factor of speedy repair service something more than theory. It must be something more tangible than a talking point. A dealer should have an adequate stock of parts neatly arranged in a well-built rack. Such a rack is not expensive to build and it need not occupy much space. Even a small rack will hold a large quantity of parts and provides a powerful argument to the prospective purchaser, who can see the value of quick service in case of trouble. Actions always speak louder than words, and the farmer is not going to be highly impressed with bombastic statements about repair service when all he can see is a small heap of conglomerate parts lying on the floor in a corner. Every dealer who has faith in his business and who wants to get the most out of it should provide himself with a strong, inexpensive rack, large enough to contain a small stock of each of the commoner repair parts.

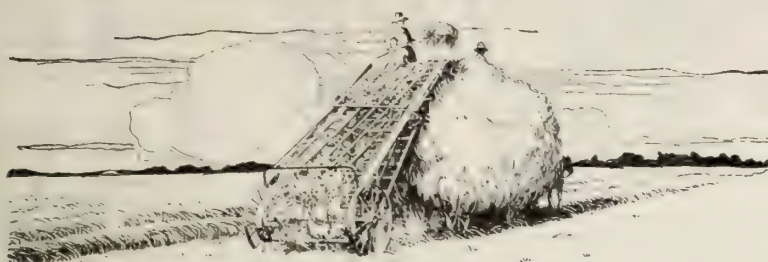
Ordering the initial stock should be undertaken with care. In case of doubt, the manufacturer's salesman or repair man should be appealed to for information on the saleability of certain parts. Naturally, the dealer will not wish to load up with parts that are seldom called for but this should not prevent him from keeping a well-balanced stock of the parts that constitute the bulk of the trade.

Nothing will gain the confidence of a customer quicker than to prove to him that you can keep his machines in constant operation. Not long ago, a certain dealer was called over the phone to supply a thresher part that had been broken. The outfit was tied up and the hands were sitting around doing nothing. Every minute meant money lost. The part was an uncommon one, and the dealer did not have it in stock, but instead of telegraphing the order to the branch house of the manufacturer and waiting for express, he jumped onto his motorcycle, rode thirty miles to the branch house town and was back on the farmer's place in three hours, with the necessary piece. One act like this would hold that farmer's confidence and trade for life.

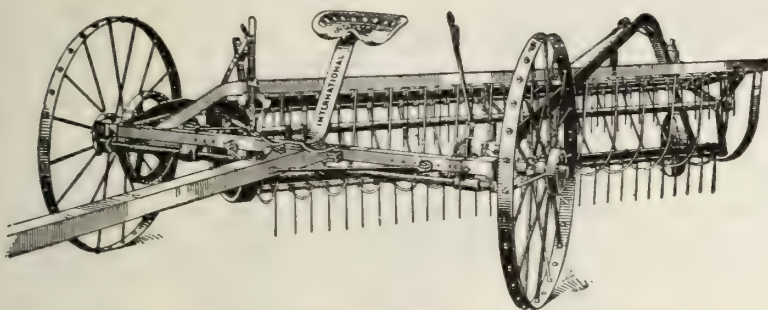
So, in summing up, let us repeat that there are certain factors that make it advisable for the farmer to do his machine buying locally and when once he has been informed, he will not be influenced so greatly by a slight difference in the initial cost. The dealer must make capital of the position he occupies, then back up his statement by rendering real service.

Never make the mistake of urging the farmer to buy at home on the theory of local patriotism, duty, or sentiment. Put it on the real basis of dollars and cents economy in the long run, and he will see the light much quicker. Business comes to the pusher, so keep in mind that the door to success is marked "Push."

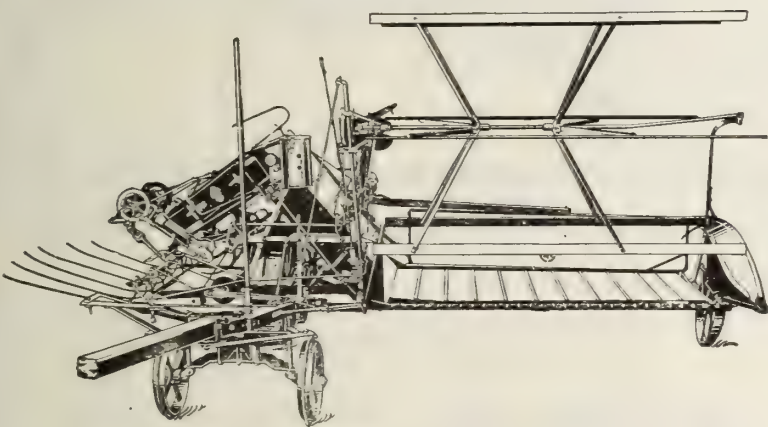
McCORMICK-DEERING DEALERS!



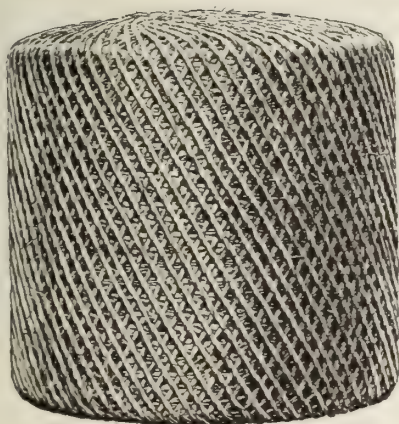
International Hay Loader



International Side Rake and Tedder



Deering Grain Binder



Sell the Big Ball

International Harvester brands of twine are wound in the original Big Ball. This is a real, practical feature and one that you can recommend to your customers. It means less snarling, fewer twine stops, and greater satisfaction. Tell your customers about the Big Ball.

Deering Mower



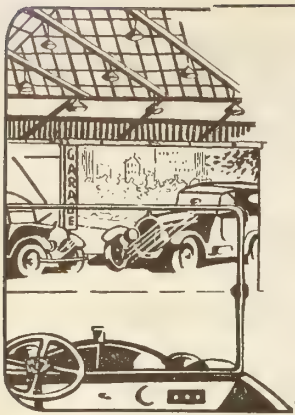
*Your Customers Will Soon Need
New Haying & Harvesting Machines
—Go Out Now After This Business*

The old tools have been worked overtime and should be replaced with new equipment this year. Farmers are already thinking about the McCormick-Deering line, for McCormick, Deering, and International are standard names in the language of the farm. In the majority of cases an aggressive policy on your part will bring about a decision to buy. Get out and talk low twine prices and new machines to these prospects and turn their thoughts to action—action that will mean big profits for you. And in the meantime, order your twine and get your stock of Mowers, Rakes, Loaders and Binders in shape.

*The Red Speed Truck will help
you get to the prospects quickly*

INTERNATIONAL HARVESTER COMPANY OF CANADA LTD HAMILTON CANADA

WESTERN BRANCHES - BRANDON WINNIPEG MAN. CALGARY EDMONTON LETHBRIDGE ALTA.
ESTEVAN N. BATTLEFORD REGINA SASKATOON YORKTON SASK.
EASTERN BRANCHES - HAMILTON LONDON OTTAWA ONT. MONTREAL QUEBEC QUE. ST. JOHN N.B.



SHOP NOTES FOR THE GARAGE MAN



Some Useful Hints on Cylinder Grinding

By L. M. HASTINGS, Heald Machine Company

CYLINDER regrinding is a feature of service which the automotive repair man could add to his business with profit. It is a comparatively new line recently come to the front with possibilities not generally recognised.

Many repair men regard it as a special business for a few large shops or for the out and out machine shops but one which is not suitable for the regular run of automobile service stations. In these days when motors are being repaired rather than discarded, it behooves the repair man to study every phase of automobile rejuvenation so that he can give a service adequate to all needs at a reasonable cost.

Too many repair men are still advising new rings when an owner is confronted with motor troubles. This is only a temporary cure. After being overhauled in this manner the motor for a time seems to run smoother. It undoubtedly will improve matters, especially if the carbon has been cleaned out, valves ground and the motor generally tuned up. It is not lasting however, for no matter what rings are used, a round ring will not fit an egg-shaped hole.

Thousands of strokes of the rings up and down the cylinder, aided by road dust and other abrasives sucked into the cylinders with the mixture, will gradually wear down the cylinder wall. This wear is greater on the two sides at right-angles with the crank-shaft. It is due to the pressure of the piston against one side of the cylinder wall on the compression stroke and on the opposite side of the cylinder wall on the power stroke. No ring will fit such a shaped hole, so there is bound to be a chance for gas escaping and a long time for the rings to wear in, if they ever do so. Therefore, as the cylinders are only worn the length of the ring travel, it leaves the lower and upper ends smaller. To put a ring the proper oversize in the worn part through the smaller hole is impossible. The only cure for a worn cylinder, and it takes but a few thousandths to show appreciative loss of power, is to have the cylinders reground and fitted with new pistons and rings. Fig. 2, which has been somewhat exaggerated, shows the wear in a cylinder which may have been made by various causes. Note how the gaps in the rings are spread, allowing gas to pass through or around the rings.

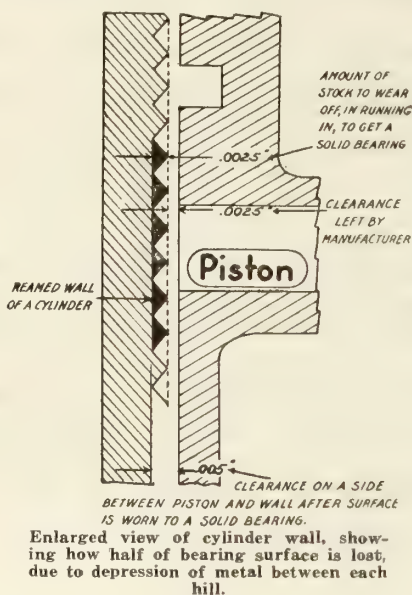
New rings in such a worn cylinder would do no good unless of the correct size to fill this hole. This is impossible, since rings of the proper size would not pass through the space either at the top or bottom of the cylinder. It will require grinding to take out sufficient stock to allow proper oversize pistons and rings to be inserted.

Advantages of Regrinding

When the statement is made that a reground cylinder which has been fitted with new pistons and rings is better than it was originally, few people can understand why. It is a well-known fact that castings change shape after they are cast. This is due to strains and stresses caused by the heavier walls of metal cooling last and shrinking away from the already cooled lighter walls.

These strains can be relieved if the castings are seasoned for a long time, or by heat-treating processes. Castings that are

immediately machined and put to work in a car, change their shape more or less, due to the heating and cooling of the motor that acts as a heat-treating operation. Therefore, a motor which has been run several



hundred miles is thoroughly seasoned and is in ideal condition to be reground and fitted up. Once having been relieved of all the strains and stresses, the castings will retain their shape continuously after grinding, if properly machined.

Cars that do not run right, that use excessive amounts of gas or oil, lack power, or smoke excessively, need overhauling. A disagreeable piston slap is a sure sign of worn cylinders. This is usually heard on hills or when the engine is laboring hard.

After it is taken down, it can best be determined whether the cylinders need to be reground or not. If found scored, out of round, or with excessive clearance between the piston rings and cylinders they certainly need regrinding. All cars that have been run two or three years should be pulled down, have the cylinders reground and fitted with new pistons and rings. Makes of cars where the cylinders were not originally ground are subject to regrinding sooner than those with originally ground cylinders.

With commercial cars or tractors, the same reasons for regrinding hold true as with pleasure cars, except the regrinding should be at least once a year. They are usually worked constantly to their full capacity and are required to perform tasks which require every ounce of power. Reground cylinders will save money for the owner on all commercial motors. Tractors in particular, are subject to excessive wear, due to the conditions under which they must work, and the dust and dirt working into the engine.

While there are a number of convenient dial gages for measuring cylinder bores it has been found that, in regrinding shops, ordinary inside micrometers are the best for all-around use.

In manufacturing plants where the size of bore runs the same, dial gages are far

superior and faster. Where one is jumping from one size hole to another, as happens in the ordinary regrinding shop, nothing that we know of will take the place and give the speed and accuracy of standard inside micrometers.

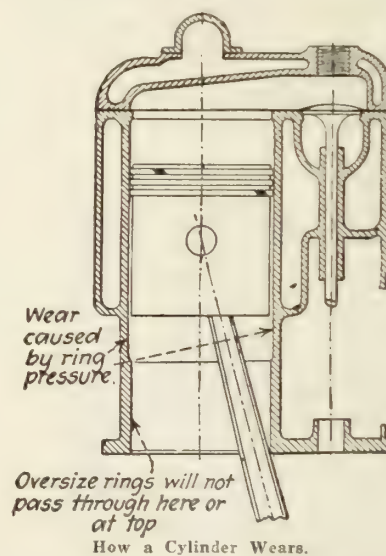
Occasionally the shifting of the cores, when molding the cylinders, leaves a thin wall. In regrinding such cylinders if the wheel should break through the man doing the work cannot be held responsible for this misfortune. Furthermore, should there be a deep score and the owner wishes it ground out instead of filled, he must assume all the responsibility for later trouble.

The Amount of Stock to Remove

A cylinder grinding machine is a precision tool and cannot be expected to remove stock in big chips like a lathe, a planer, etc. On the other hand, it is built to remove stock very rapidly for a grinding operation and should not be considered a polishing proposition. With a little judgment and experience one will soon know just how much stock to take off in roughing out and also in finishing.

Dry grinding is used exclusively in cylinder regrinding. Water on the surface that is being ground will not give a good finish nor allow for satisfactory production. An exhaust fan can be furnished to carry away the dust.

Where large amounts of stock are to be removed, the cylinder becomes overheated, so that when cold the diameter of the hole is likely to change. It is best to rough out all the holes to within 0.002 in. of the finished size, and then by coming back to the first hole it will be nearly cool and ready for finished grinding. The



usual custom when a nominal amount of stock is to be removed is to finish each hole as you go along.

Selecting Wheel for Work

A most vital factor for successful work is the wheel. Unless all conditions gov-

Grade of Cast Iron	Abrasive Co.	American Co.	Carborundum Co.	Cortland Co.
Soft	30-J	36-J	365-P-OF	36-W Plus
Medium	30-I	36-I	303-S-OH	36-W1
Hard	30-H	36-I	303-S-OH	36-W2
For Steel	46-J Borolon	1733-J Corundum	36-P-L6 Aloxit	36-K Oxaluma
Grade of Cast Iron	Detroit Co.	Norton Co.	Vitrified Co.	Waltham Co.
Soft	36-I	36-I	46-H	46 s-I
Medium	36-H	36-H	36-I	36 s-I
Hard	36-H	36-H	36-H	36 s-H
For Steel	36-I Staralox	3836-I Alundum	46-H Corundum	36 s-I Special Alowalt

erning the wheels are of the best, results will not be satisfactory. Too hard a grade or grit of wheel will glaze or load, and the holes will not be round or straight; while, on the other hand, too soft a wheel will break down and wear away too fast.

Certain wheels seem to work very satisfactorily in practically all regrinding shops. Of course, different makes of cylinders vary, but taken as a whole, the best success in grinding cast iron is obtained with the wheels listed in the table reproduced here.

The wheels listed for hard cast iron are best for such castings as Mack, Pierce-Arrow and Packard trucks. Their cylinders are extremely hard, in fact, are almost a semi-steel. Wheels for medium cast iron will handle 90 per cent of all regrinding jobs, taking them as they come.

Occasionally soft blocks are received that even the medium wheels do not cut freely, in which case be sure you are using the highest eccentric speed and use wheels listed under "soft." This hardly ever fails to give the desired results. Remember also that the finish can be only as good as the surface on the wheel and that it should be always perfectly true and smooth.

Even if you have the correct wheel in regard to grade and grit, it will be useless unless it is up to speed. Wheels 2½ to 3 in. in diameter should run 6,950 r.p.m. These wheels will handle holes 2½ to 5½ in. in diameter. Wheels 3½ to 4 in. diameter should run 5,930 r.p.m., and can be used for holes 3 to 6½ in. diameter.

Assembling the Motor

Many a perfect regrinding job has been spoiled when the motor is being assembled. Great care should be taken to wash the cylinders and pistons, rings, etc., carefully with gasoline. Be sure every particle of abrasive material and foreign matter is removed. Make certain the wrist pin fits both the rod and piston, and see that it is securely fastened on. Better go over this an extra time and make sure, for a loose pin or screw will ruin the entire job the first time the engine is run. Measure the pistons for roundness after assembling with the connecting rods, to see they have not gone out of shape. A slight tap with a wooden hammer will correct any change.

After assembling the pistons on the crankshaft, test them to see if they are absolutely square. Do not take it for granted, because the connecting rods were straight before it was pulled down, that they will be when you assemble them. There are many chances and reasons why they may have become twisted or out of square. This could happen in taking off the block with the pistons still connected to the crankshaft, when it is an easy matter to bend or twist the rods. Again, in scraping in the connecting-rod bearing or in tightening the caps, a slight variation at this end will increase many times at the piston end.

That the pistons are square is highly important; and, if not, the cylinders might just as well not have been ground, for the pistons hitting on the sides will give all the troubles of an out of round hole.

Ford Engine Stands

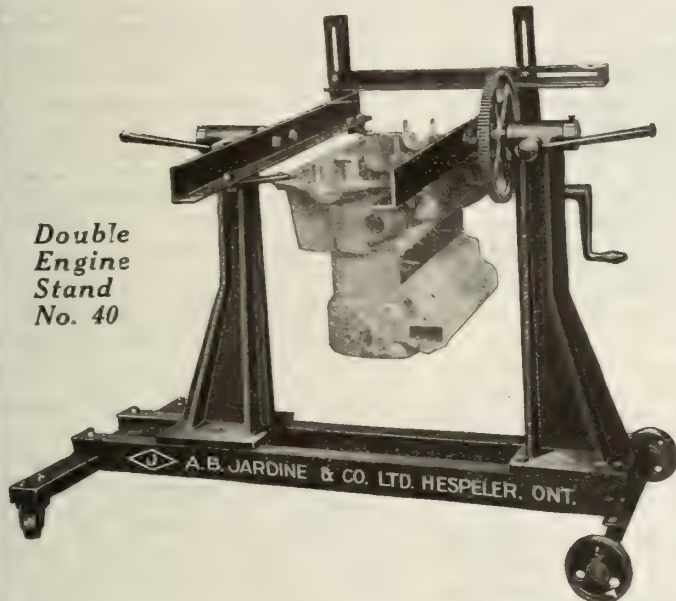
*The Acme of Convenience
—and Strongly Built*

The two stands you see illustrated here are designed on the best principles of construction, providing the simplest and most convenient methods of handling automobile engines. They are as strongly built as they are simple and efficient and will meet most of the requirements of the garage and shop. Ford Engine Stand No. 10—Holds Ford or Chevrolet engines. Positive lock in any position. Weight, 130 pounds.

Prices—No. 10 portable \$34.00
No. 1, stationary 26.60



Ford
Engine
Stand
No. 10



Double
Engine
Stand
No. 40

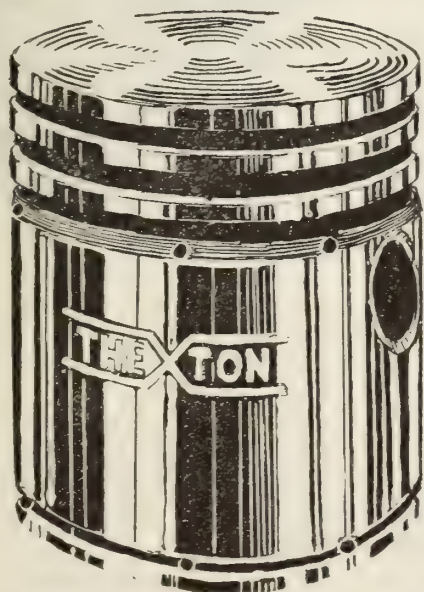
Geared Portable Double Engine Stand No. 40—Carries engine as shown, or any three-point bearing engine. Positive lock at each end. Weight, 320 pounds.

Prices—No. 40, geared portable \$88.00
No. 3, plain stationary 67.50

*We are also manufacturers of presses, floor cranes and
wrecking cranes. Write for further particulars.*

A. B. JARDINE & CO., LIMITED
HESPELER, ONTARIO

REPLACEMENT PISTONS and PISTON PINS



*Best Quality
All Sizes*

Have you any difficulty in securing pistons or piston pins? Why worry! Adopt the habit of ordering from us. Largest list of any Canadian manufacturer. Standard designs—no freak ideas. Write direct if your jobber is not handling them.

Repair Men!

Send us your cylinder grinding jobs. Our equipment is right up-to-the-minute, workmen skilled and prices reasonable.

Thexton Machine Works, Limited

736 Dundas St. E., TORONTO Phone Main 4233W

Dumps Load With Ease



**LEE
Dump
Body**

A Dump,
Express and
Stake Body for
Ford Trucks

The longest plank on this load is 18 feet

The LEE Dump Body can be put to many varied uses and in every case dump the load with extreme ease. No hoist—and dumps without power! The double-acting tail-gate is useful for hauling lumber. Note the illustration: the longest plank on this load is 18 feet; the load dumps out as easily as sand gravel. Trucking by motor is the "only" way. Send for literature fully explaining Dominion "LEE" Dump Bodies and how they will save you time and expense in your hauling operations.

Manufacturers
of
Trailers, Hoists,

DOMINION
TRUCK EQUIPMENT
COMPANY, LIMITED

Dump Bodies
and
Truck Units

KITCHENER, ONTARIO



Millions of Columbias are in use—

Ringing bells
 Protecting bank vaults
 Calling the police
 Ringing fire alarms
 Buzzing buzzers
 Firing blasts
 Running toys
 Calling Pullman porters
 Ringing burglar alarms
 Lighting tents and outbuildings
 Operating telegraphs and telephones
 Furnishing ignition current for gas
 engines, tractors, motor boats, and
 quick starting of Ford cars.

Columbia is the fastest selling dry battery on the market. It has the largest turnover. Columbia advertising is nation-wide and persistent. Columbia Quality is always uniformly high. It is the dry battery that makes the most profit for you and brings your customers back for repeat sales.

The big selling season is ahead of you—make sure that you have an ample stock of Columbia No. 6 Cells and the famous "Hot Shot" types. Order through your Jobber specifying Columbia by name.

CANADIAN NATIONAL CARBON CO. LTD.
MONTREAL TORONTO WINNIPEG VANCOUVER

Columbia Dry Batteries

—they last longer—

With the Manufacturers

The International Tank and Silo Co. are contemplating establishing a factory at Galt, Ont., for the purpose of manufacturing silos, tanks, grain bins, gates, etc.

The International Harvester Company shipped from January 1 to April 1 a total of 1,651 carloads of trucks from their factories at Akron and Springfield, Ohio.

The Moon Motor Car Co. report that sales for March were 50 per cent. greater than for March, 1921, and 20 per cent. greater than for March, 1920. Production schedule has been increased.

Joseph P. Rogers, director and manager of the lubricating department of the Queen City Oil Company, died at his residence in Toronto on April 28. Mr. Rogers was also a director of the Imperial Oil Co.

The Lincoln-Ford Motor Car Co. is capitalized at \$15,250,000. There are 2,500 shares of common stock, of which Edsel Ford, President of the Ford Motor Co., holds 2,497. Henry Ford, Henry M. Leland and Wilfrid Leland hold one share each.

The Pressed Metals Company of Canada report that the past two months of this year have been the best in the history of the company. The automobile activities of the company have been devoted exclusively to turning out bushings for the Ford Motor Car Co.

N. B. Reisinger, who has traveled the Milwaukee territory in a wholesale and retail capacity for many years, has been appointed District Sales Supervisor for Earl Motors, Inc., in this territory. Mr. Reisinger will make his headquarters at 997 44th St., Milwaukee.

The Topp Stewart Tractor Co., of Clinton, Wisconsin, are opening a Canadian factory at Kitchener, Ont. The company will build a tractor of the four-wheel drive type. A. M. Kerr, manager of the Four Wheel Drive Co., Kitchener, will occupy a similar position with the new company.

Following a standard policy of rendering prompt service the Eisemann Magneto Corporation announce the removal of their Chicago branch to larger quarters at 2005 S. Michigan Avenue, Chicago. All repairs will be made on the premises and a complete stock of magneto and parts will be carried.

C. M. Hall, formerly in charge of the New York territory for the Dodge Transmission Co., has become associated with the Black and Decker Mfg. Co. and will have the territory including Indiana, Kentucky and the corner of Ohio which includes Cincinnati and Dayton. Mr. Hall is an experienced merchandiser.

Malcolm Grant, whose former experience has been largely in efficiency and time study work in automotive factories, has joined the Black and Decker organization in a selling capacity, and will have the State of Ohio, except the corner which includes Cincinnati and Dayton. Mr. Grant's headquarters will be at the Black and Decker Branch Office, 2030 E. 22nd St., Cleveland, Ohio.

The Hudson Motor Car Company and Essex Motors announce the appointment of William A. James as advertising manager. Mr. James has been connected with Hudson and Essex for a number of years—first in the sales and technical service departments, from where he came to the advertising department a year ago. Previous to factory activities he had considerable experience in the field as a retail salesman. The appointment is effective immediately.

The Imperial Oil Company will very shortly commence work on a plant station at Battery Point, Cape Breton.

The Russell Gear and Machine Co., Ltd., Toronto, have acquired the manufacturing and selling rights in the British Empire for Billmont wrenches.

The Lennard Machine and Tool Co., whose factory until recently has been closed down report a revival of business in their line, that of tooling parts for automobiles.

The Fisher Motor Co., Orillia, Ont., are erecting a new factory to take care of their rapidly growing business. The company is putting on the market a radiator cap for automobiles.

Russel K. Covert, connected with the sales department of the John Deere Plow Company at Syracuse, N. Y., died on April 14. Mr. Covert was known to the trade through his connection and is sincerely mourned by his friends.

Automobiles manufactured from Canadian materials and parts and by Canadian labor, will soon be assembled in London, England. General Motors are establishing new works at Hendon, a suburb of London, in which they are to assemble Canadian-made Buicks, Chevrolets, Oldsmobiles and Oaklands.

A. B. Walker, who has been active in the automobile industry for some ten years, has been appointed District Sales Supervisor for Earl Motors, Inc., in the Kansas City territory. Mr. Walker has had extensive retail and wholesale experience both in Illinois and Kansas City territories, and he is very well known in these districts.

Roadfinder Limited is the name of a new corporation granted letters patent by the Dominion Government. The new company is capitalized at \$50,000, and incorporated for the purpose of manufacturing and dealing in Roadfinder and other automobile and machinery accessories and supplies. The provisional directors are W. M. Clark, R. Campbell, L. F. Stephens, H. J. McKenna and A. Turner.

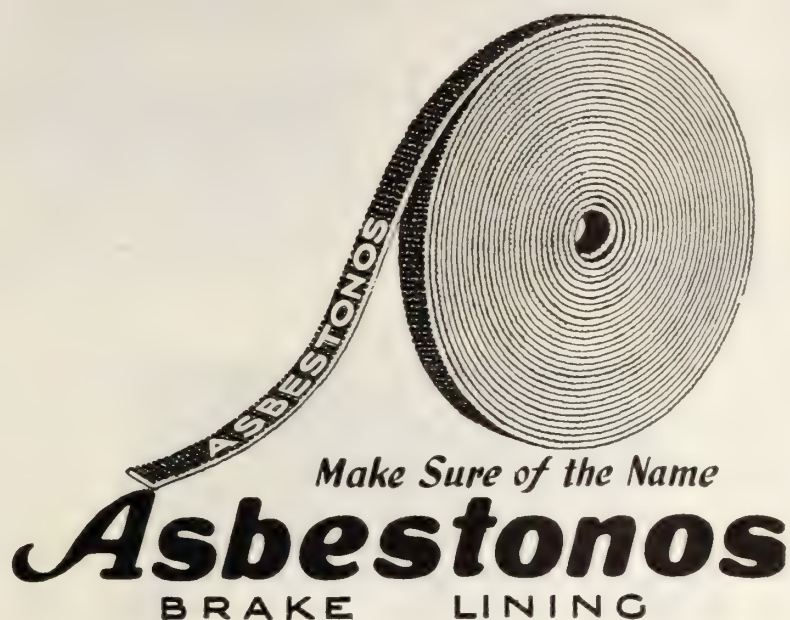
Judgment has been handed out in connection with the case between the Motor Trucks, Ltd., of Brantford, Ontario, and the United States government. The buildings, valued at \$343,000 were first awarded to the U. S. but the appeal court has decided that these are the property of the Motor Truck Co. The United States of America put \$1,900,000 into the plant of Motor Trucks, Limited, Brantford, for the purpose of having high-explosive shells manufactured there for the war. The company dropped all its other activities and bought four acres of land for extending its factory. Then, before a single shell had been manufactured, the contract was terminated.

IN CHARGE OF DURANT SALES

C. D. GLEASON has been appointed Canadian sales manager of the Durant Motor Company with headquarters at Toronto.

Mr. Gleason has been a prominent figure in the motor industry for a number of years. He is a Canadian citizen, although much of his business life, and more particularly his connection with the automobile world, has kept him in the United States. For a number of years he was connected with the Chevrolet Motor Company of Canada at Oshawa. Subsequently he went to Detroit and represented the Chevrolet division of General Motors in that city.

He is severing a lengthy connection with the General Motors organization to accept the position of general sales manager with the Canadian Durant Co.



ASBESTONOS

Brake Lining is Made-in-Canada from Canadian materials by Canadians—an all-Canadian product.



FREE Display Stand supplied to dealers. Ask your jobber about it.

Made right in the centre of the world's supply of asbestos, and only the finest asbestos fibres are used in its production. These selected asbestos fibres are woven with double strands of brass wire, to give added strength, and after weaving is thoroughly impregnated with a special compound which renders it impermeable to greases and oils. The result is that Asbestonos is a perfect brake lining—a brake lining that will give long service and be dependable in an emergency. The moderate cost will be a revelation to you.

Ask Your Jobber for Asbestonos

ASBESTONOS COMPANY, East Broughton, Quebec

Sole Factory Representatives

Richardson & Bureau
 Montreal

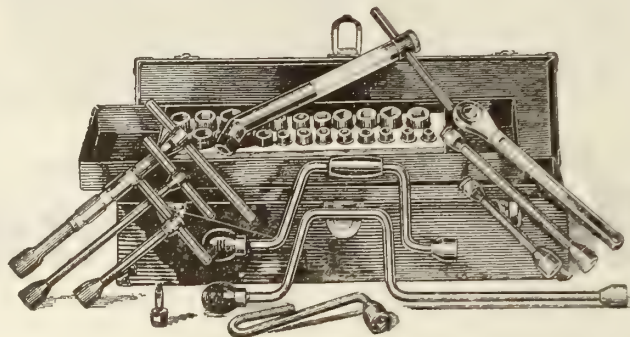
Automotive Accessories and Implement Equipment

BILLMONT MECHANIC'S KIT

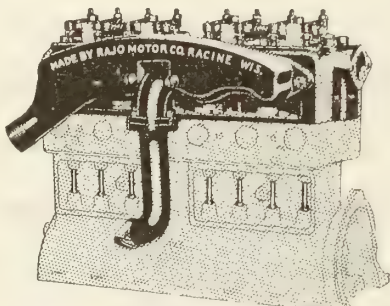
AN OUTFIT of Billmont wrenches in a strong metal carrying kit, equipped with a heavy lock, is now being made and marketed in Canada by the Russell Gear and Machine Co., Toronto. The makers say everything is right where the mechanic wants it and at the time needed. The equivalent of 192 wrenches, or 768 with the use of extensions, is provided in this set. The sockets used in Billmont wrenches are cut from a solid steel bar, finely machined, broached and hardened, with walls of sufficient weight and thickness to resist the most stubborn nut.

The outfit consists of 24-gauge metal kit box and tray, one master wrench, one junior, one offset, one rim brace, one speeder, and one short T, one long T, a ratchet, two extensions one interchangeable screw driver attachment and twenty four sockets embracing all sizes from 3/8 inch to 31/32 inch hexagon, and from 7/10 inch to 3/4 inch square.

The extensions are 6 inches and 9 inches respectively. They fit into every wrench nose piece in the line, and the socket opening of each extension will take every size of socket—therefore the makers say it is possible to use one or both extensions together on any Billmont, thereby securing additional length and greater utility.



Billmont Mechanic's Kit



Rajo Valve-in-Head for Fords

RAJO VALVE-IN-HEAD FOR FORDS

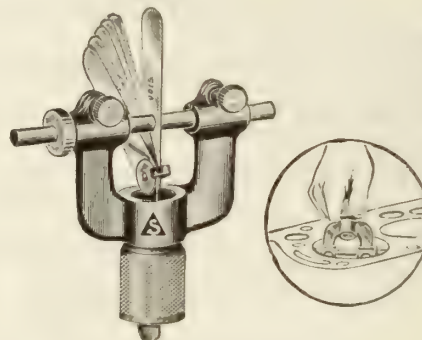
THIS IS designed to replace the regular Ford head and to convert the Ford into a valve-in-head motor. The makers claim for their device increased flexibility, greater horse-power, more miles to the gallon of gasoline, low oil consumption etc. The spark plugs in the Rajo head are set at 25 degrees angle, reducing fouling, it is said, and keeping oil from seeping in. The valves used in this head are of tungsten steel and are almost double the Ford size.

It can be installed in four or five hours the makers say, by simply disconnecting the radiator, carburetor and exhaust leads, and unbolting the old head. Cappings are furnished to plug the passages formerly used for intake and exhaust. Cold rolled steel push rods, actuated by the regular Ford camshaft, replace the old valves.

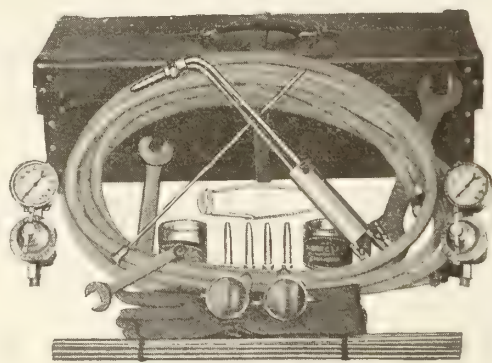
The head proper is made from high grade gray iron. The rocker arms are of drop forged steel. They are pivoted on drop forged rocker shaft which is hardened and ground to size. No change in gear ratio is necessary. The Rajo has no connection with Ford Starting and Lighting system and in no way interferes with it. It is made by the Rajo Motor Co.

PYROMITE ADJUSTABLE VALVES

THE Pyromite adjustable intake and exhaust valves are designed to provide a means for taking up the wear on the cam-shaft, tappets and valves of a Ford engine, as affecting the timing of the valves and power generation of the motor. The adjustment of these valves, the makers say, is very simple. It is only necessary to turn the adjusting nut until the valve is seated as desired and then, holding the adjusting nut rigid with one wrench, turn down the clamping nut with another wrench until the adjusting nut is tightly locked to the valve stem. A special lock washer with a rectangular depression on the underside, into which the valve stem pin fits, prevents the valve from turning while the nuts are being adjusted. The valves are made of a special alloy heat treated steel, which, it is said, resists warping and pitting. Made by Steel Products Mfg. Co.



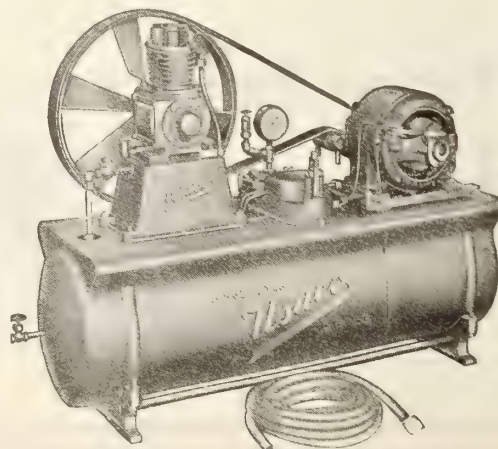
Cylinder Micro Gauge



Milburn Garage Outfit



Pyromite Adjustable Valves



Usaco Single Stage Compressor

MILBURN "AMERICAN" GARAGE OUTFIT

A NEW oxy-acetylene welding and carbon-burning unit for use in the service garage and machine shop is the Milburn "American" Garage Outfit. The Outfit consists of:— 1 welding torch No. 1, 16 inch long; 5 welding tips for torch; 1 carbon burning tube, 10 inches long; 1 single gauge oxygen regulator; 1 single gauge acetylene regulator; 1 length oxygen hose, 3 ply 12 1/2 feet long; 1 length acetylene hose, 3 ply, 12 1/2 feet long; beginner's supply of steel, cast iron and tobin bronze rods and fluxes for same; 1 pair welding goggles, wire frame, leather sides, in flat metal box; 1 pair gauntlet leather gloves; 1 pyro friction lighter; 1 set wrenches for torch, hose and regulators; 1 fibre carrying case, with reinforced riveted corners, oak tan leather handle and strap with buckle.

The welding torch is made to give a neutral flame with economy of gases, and is of the balanced pressure type, operating on approximately equal pressures of oxygen and acetylene. The handle is seamless drawn brass tubing, oval shape for easy grip. Gas tubes are seamless drawn tubing, curved in a long radius at torch head, which minimizes frictional resistance and drop in gas pressure. Torch head is solid wrought brass of extreme density, insuring freedom from leaky blow-holes.

All mixing occurs in the tip. Here the acetylene stream is broken up into multiple jets, which enter the oxygen stream under equal pressure. This intimate mixing of gases under equal pressure insures that no portion of either gas will be blown through the flame unconsumed. The result is a truly neutral flame. The torch is adapted to any gas, either from generators or compressed gas in tanks.

The seat of the regulator closes with instead of against the pressure. This permits closing by a sealing pressure of several pounds instead of hundreds of pounds with attendant risk of damaging or splitting the seat. The closing of the seat is independent of the diaphragm. The carbon burning tube fits in torch head just like a welding tip. Made by the Alexander Milburn Co.

NEW LINE OF USACO SINGLE STAGE COMPRESSORS

THE United States Air Compressor Co. recently placed on the market a line of single stage air compressors embodying many features of merit adopted from their line of Usaco De Luxe two stage compressors. Perhaps the most notable feature of these new machines is the accessibility of the compressor unit, it being possible to gain access to any part without disturbing other parts. The new machines are made in one and two cylinders, either gear or belt driven from the motor and in both stationary and portable form. The line comprises 10 compressors covering practically every need.

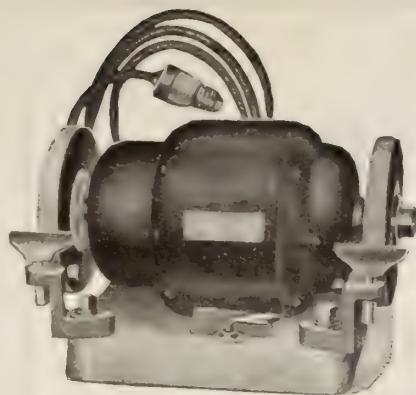
They are fully automatic units equipped with air pressure release which permits the motor to start without load. The units have safety devices, oil trap and moisture discharger. Lubrication is by automatic splash.

CYLINDER MICRO-GAUGE

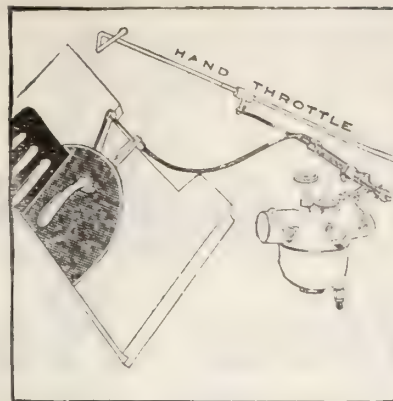
THIS gauge tells the exact oversize of any cylinder when fitting rings, pistons, etc. It's fixed pin and adjustable pin together equal the standard size of the cylinders; therefore the opening between pins shows the oversize, which is measured with an ordinary thickness gauge. Extra fixed pins can be had in any size. Made by Stevens and Co.

ACCELERATOR FOR FORDS

AN accelerator for Ford cars is being manufactured by the Williams Bros. Aircraft Corporation. The makers claim that the object of this device is to provide the driver of small model cars, with the added comfort and precision enjoyed in the more expensive types of automobiles. It is also said that this device enables considerable economy in gasoline consumption. Foot control over the car's speed is thus available, proving a big advantage in crowded thoroughfares and for steep grades. The manufacturers point out that both hands of the driver are thus free for other purposes. Only three connections are necessary to the installation of the Williams accelerator. These are the hand throttle, carburetor lever and the floor of the car. The pedal works on a spring action.



Stow Bench Grinder



Accelerator for Fords

THE USACO REVOLVING AIR AND WATER TOWER

AN AIR tower for free air and water service, has been placed on the market by the United States Air Compressor Co.

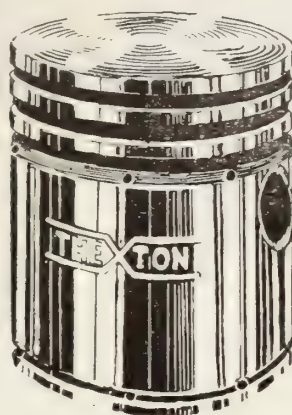
The tower is full revolving and will serve a car at any point within a diameter of 34 feet. It is equipped with a cushion stop which checks the return movement of the arm, thus preventing the hose from lashing and avoiding all shock, to the tower. The water hose is equipped with a compression faucet which permits filling radiator without splashing. The hose is always clean. A slight pull brings the hose forward as needed. When released, it returns to a vertical position without lashing of the hose or racking strains on the tower, as it is controlled in both movements by the cushion stop.

LUFKIN THICKNESS GAGES

THE Lufkin Rule Co., recently introduced a new feature of interest to repair men, in the form of a patent lock and thickness gage. By means of a lock nut, any, or all of the leaves can be rigidly held in position. The gages are made in different sizes—the No. 6 size having six leaves, the No. 7, seven leaves, and so on. The blades are one half inch wide and three inches long. The tool when locked can be converted into a limit gage.

THEXTON PISTON

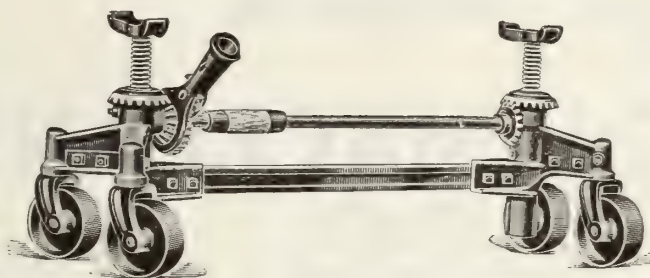
THE Thexton piston is made in sizes for all cars and trucks. The makers say they are uniform in weight and wall thickness and are cast from the best material and heat treated to eliminate internal stresses. All machine operations on these pistons are performed on special jigs and fixtures, all operations being concentric with the core. They are ground to a hard, highly polished surface and finished with bronze piston pin bushings, made by the Thexton Machine Works, Toronto.



Thexton Piston



Simplicity Tractor Hitch



Four Wheel Garage Jack

STOW BENCH GRINDER

THIS device is made to supply a light tool to do tool grinding and fine grinding in the automobile repair shop. It will operate from any lamp socket and is fitted with extra heavy bearings which are protected from dust. It is supplied with tool rests, wheels, switch and lamp cord. The motor has a 3-8 H. P. rating for direct current and 1-4 H. P. for alternating current. Made by the Stow Mfg. Co.

FOUR WHEEL GARAGE JACK

THESE jacks are made from malleable iron and equipped with steel shafts and ball bearings. They have two wheels at each end which it is claimed gives them greater stability and enables them to be more easily handled when lifting the car. They are operated with a lever and have no complicated parts. The makers are the W. E. Pratt Mfg. Co.

SIMPLICITY TRACTOR HITCH

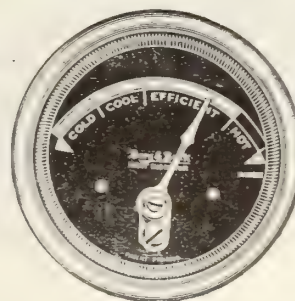
THIS DEVICE is for the Fordson tractor and attaches to the regular stub tongue. It is adjustable for binders, wagons, grain drills, spreaders, etc. The makers say it is equally satisfactory for transporting the binder to the field and on the road. It is made by the Nelson Accessories Company.



Stayhot Soldering Iron



Air and Water Tower



Borg and Beck Heat Indicator

BORG AND BECK HEAT INDICATOR

THIS is a scientific instrument which records the true motor temperature in plain sight, on the dash. It tells at all times, it is said, and under all conditions the operating temperature, and indicates the approach of motor trouble before the danger point is reached. Its efficiency does not depend in any way on the water circulating system.

The principle of operation of this device is purely mechanical. It consists of three main parts—the actuating unit which clamps against the motor cylinder, a flexible shaft, and a gauge which is attached to the instrument board. The actuating unit contains a thermostat of unique design, any variation in the temperature of the motor causing it to expand or contract, in direct proportion. A small gear segment and pinion are so connected that a timing motion is given to a flexible shaft, which connects the pinion with the indicator hand. The temperature ranges are designated on the gauge dial by contrasting colors, so that the operator can see at a glance the condition of the motor. The device works automatically and has nothing to break or get out of order. One model fits all water-cooled motors. A special model is made for air cooled motors. Made by the Borg and Beck Co.

FAUROT-SCOPE

THE Faurot-Scope is a compact anti-theft device made of a special rust-proof composition metal. When the operator of the vehicle locks the device the ignition system is completely paralyzed and a red diamond tell-tale is displayed. The automobile cannot then be moved under its own power. The device is attached permanently to the left forward fender. The ignition system is put completely out of commission when a plunger capped with the red diamond tell-tale is locked in a socket sunk in the top of the Faurot-Scope; this provides a warning signal which serves as a notice to all police officers and to would-be-thieves—that the automobile has been locked by the owner.

The ignition system is restored to normal, and the automobile can be operated only when the plunger is unlocked, withdrawn and replaced by another plunger capped with a plain white metal disc which is securely locked in position by the same lock and key as the other plunger. Removing either plunger from the socket sounds an alarm on the horn with which the car is equipped, until one of the plungers is reset and relocked in the socket. It is made by the Faurot-Scope Corporation.

STAYHOT SOLDERING IRON

A NEW tool known as the "Stayhot" self-heating combination soldering iron and blow-torch, manufactured by The Thermo-Gas Products Co., has recently been put on the market for use in garages, battery service stations, etc.

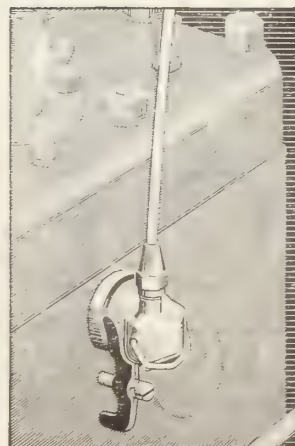
This tool burns denatured alcohol, and does away with the necessity of carrying fire-pots for the heating of irons. As a soldering iron an even heat is maintained, without interruption of changing irons and enables the performance of more work in a given time, with a cleaner, better grade of workmanship. Due to the fact that the blue flame only touches the back of the soldering tip, the makers say, tinning lasts much longer than on the old type irons. By unscrewing the copper tip, the tool becomes a very efficient blow-torch.

These tools are made up in brass with stained wood handles. By removing the wood cap at the large end of the handle, a brass cap is exposed which is removed for filling purposes. When the wood cap is again in place a small amount of alcohol is placed in the priming cup above the soldering tip for starting, which takes approximately two minutes to burn out and then the iron is ready for use.

The model illustrated here is equipped with needle-valve control which permits the user to cut down the flame at will, thus keeping the iron thoroughly tinned but still hot and ready for use again by a half turn of the valve handle.

CAMP OUTFIT FOR FORD SEDANS

THIS outfit is designed to fit Ford touring cars and sedans. They can be installed easily and quickly in less than four minutes. They are storm-proof and rain-proof. Distributed in Canada by the Geo. H. Broughton Co.



Shall We Bar The Yellow Race?

LAST Autumn MACLEAN'S ran two striking articles by **John Nelson**, who is the former Managing Editor and part owner of the Vancouver "World," dealing with the menace of Asiatic immigration, under the caption "Will Canada Go Yellow?" In this third article Mr. Nelson brings forward his suggestions for solution.

As this question came up

In The House of Commons

Monday, May 8, and led to a very lively debate, no more timely article could be published in a Canadian periodical to-day.

Pepita Pink-Toes

By

G. Appleby Terrill

THIS is a burlesque racing story feature with an entrant in the Derby which always danced on coming to the post. Mr. Terrill has woven a romance into his yarn, dealing with a very feminine owner of some race horses and a very masculine writer of hectic fiction.

Other Features In

MAY 15th MACLEAN'S

HERE IS THE FARMER'S ANSWER
By Agnes C. Laut

J. R. BOOTH—ON THE JOB AT NINETY-FIVE
By Charles Christopher Jenkins

A BIT OF ORANGE PEEL
By "Sapper" H. C. McNeile

FOOTPRINTS IN THE SNOW
By Maurice Le Blanc

MY OTTAWA MEMORIES, 1866—
By George C. Holland

FOLLY
By Ben Ames Williams

AN ISLAND THAT TRAVELLED
By Sydney Bell-Clifford

OVINGTON'S BANK
By Stanley J. Weyman

A PROGRESSIVE PROFESSION FOR GIRLS
By Gertrude E. S. Pringle

LOAN SALE IN U.S. SHOWS SOUND BUSINESS POSITION

REVIEW OF REVIEWS

Nine articles full of timely interest and information.

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PROVINCES SPEND \$25,000,000 UPON GOOD ROADS

CANADIAN provinces have under way highway programmes involving the expenditure of \$25,000,000. Up to September 30 last the Dominion Government had approved programmes of roadbuilding to the amount of \$23,992,027, toward which the Dominion had arranged to contribute 40 per cent. of the cost or \$9,596,812.

The highways involved to be improved under these schemes—which are the result of the recent Canada Highways Act, under which the Dominion Government agrees to pay 40 per cent. of the cost of certain highway improvements—have a total mileage of 3,798 miles divided among the provinces as follows:

Alberta	none
Nova Scotia	50.6
Prince Edward Island	181.2
Quebec	220.1
British Columbia	319.9
Ontario	541
Saskatchewan	599.2
Manitoba	764.7
New Brunswick	1,120.8

Ontario Spending Most

The amounts being spent by the various provinces are shown below, the variation in ratio between total mileage and total expenses being due to the vast difference in the average cost per mile which varies from \$1,163 per mile in Saskatchewan where sand and gravel roads will suffice, to over \$20,000 a mile in Ontario where a system of provincial highways of concrete and bitulithic construction is under way.

Alberta	none
Prince Edward Island	329,565
Saskatchewan	697,175
Nova Scotia	757,321
British Columbia	2,036,280
Quebec	2,535,558
New Brunswick	2,938,709
Manitoba	3,478,902
Ontario	11,118,517

Growth in Motor Cars

It has been the vast development of motor vehicle traffic that has made highway development in Canada such an urgent problem. The number of motor vehicles in Canada increased from 69,598 in 1914 to 415,268 in 1920, the latter year comparing with the 1919 total of 336,806. Of the total number of motor vehicles in Canada in 1920 some 25,000 were motor trucks. The revenues from motor license fees totalled \$601,028. In every province this fund or the entire fund less cost of administration of the motor vehicles department, is devoted to highway construction and of course most of the provinces add large additional sums for highway construction from other revenues.

The number of automobiles in each Canadian province in 1920 and the total revenue from registration and license fees applicable to highway construction was as follows:

Ontario	177,561	\$2,017,656
Saskatchewan	60,314	868,439
Quebec	47,159	1,133,232
Alberta	38,462	682,209
Manitoba	37,571	407,065
British Columbia	28,850	401,000
Nova Scotia	12,635	265,764
New Brunswick	11,216	198,112
P. E. I.	1,419	42,451
Yukon	81	

Saskatchewan has the most automobiles per capita or a total of 1 for every 12 people. The proportions in the other provinces are: Alberta 1 in 15; Manitoba and Ontario 1 in 16; British Columbia 1 in 21; New Brunswick 1 in 34; Quebec 1 in 41; Nova Scotia 1 in 45.5 and Prince Edward Island 1 in 62. Prince Edward Island's total is growing though as there were but 50 automobiles there in 1916 and there were about 1,500 in 1920. The proportion of automobiles in Canada is 1 in 21 of the population.

Aye! Aye!—Old One—Wonder what's happened to all of the horse doctors?

Younger One—If I can judge from my experience, they've become auto mechanics.

NEWS—OF THE TRADE FOR THE TRADE

ALBERTA

THREE HILLS:—Approximately 60 Titan tractors have been sold in this district during the past four years by H. T. Howe, International dealer.

RED DEER:—J. A. Choate and M. Larson who have been with F. Lund's Ford Garage for the past year, have taken over the mechanical end of the business from Mr. Lund. Messrs. Choate and Larson also take over the gas, oil and storage, leaving Mr. Lund free to devote his energies to sales.

MANITOBA

SANFORD:—The tractor and automobile repair business formerly conducted by A. E. Stenberg has been purchased by W. B. Donovan.

WINNIPEG:—D. Drehmer, vice-president of the Winnipeg branch of the John Deere Plow Co., recently spent a vacation in the United States.

MARITIMES

HALIFAX:—F. C. Manning, lately of Windsor, N. S., has opened a garage here with the agency for Ford cars.

ONTARIO

BRANTFORD:—The Pure Gasoline Co., Toronto, is contemplating the erection of a service station here.

SIMCOE:—L. Cratt has commenced work on a new garage which it is expected will be completed in about five weeks.

LINDSAY:—A new garage will be opened here by Major Ketcheson, who has been appointed agent for the Oldsmobile and Oakland cars.

GALT:—A new garage has been opened here by A. Pettigrew and H. Smith. Both men are experienced mechanics. They will handle all repairs.

PETERBORO:—A. Brown has purchased a site on the north-west corner of Charlotte and Aylmer streets where he will erect an up-to-date brick garage.

GALT:—An automobile paint shop has been erected by A. B. Dryden. The shop is 40 x 80, has dust proof varnish room and will accommodate about 20 cars.

HAMILTON:—Ellis, McIntyre Motor Co. have been awarded the contract to supply the Board of Control with four Ford coupes, two Ford sedans, four Ford runabouts and one Ford truck.

STIRLING:—The Auto Electric and Storage Battery Co., is a new concern specializing in storage batteries, and other electrical and carburetor troubles. W. A. Gradon is the manager.

TORONTO:—A new automobile firm Culley, Breay, Dever, Limited, has been formed to distribute Maxwell and Chalmers cars in Ontario. The Nash Six will also be distributed by the new organization.

WOODSTOCK:—A. Hastings and Son, have purchased property here and will erect a wholesale and retail oil and gasoline service station. The office and warerooms will be built of brick and equipped with seven visible pumps for gasoline, lubricating oils and coal-oil. The building is estimated to cost \$15,000.

OWEN SOUND:—Automobile dealers of Owen Sound last month staged the first motor show Owen Sound has witnessed. Faced with the impossibility of securing quarters large enough or suitable in any way for a centralized display, the dealers opened their show rooms and extended a general invitation to the public to see the 1922 models. The "open house" week, patterned after those which have been held in

other centres similarly situated, has proved a success and interest in the automobile has been generally stimulated.

INGERSOLL:—Fleischer and Jewett who have conducted the Willard Battery Service on King Street for the past two years have secured larger premises on Charles Street. In future the firm will be known as the Ingersoll Auto Electric.

FORT WILLIAM:—Charles Hutchison, manager of the Twin Port motor company, has purchased the Peltier block, now occupied by the City Hall garage, from Wilmen and Geanos, for a price approximating \$25,000, and will take possession on April 1, with a stock of Durant cars. At a later date premises will be secured in Port Arthur.

ROCKLAND:—Capt. T. York, in conjunction with Russell J. Reaney, has developed a machine which, it is claimed, will revolutionize motive power. The machine has been patented in Canada and the United States. Successful experiments have been made with it, power being generated from the air by some means which the inventors state will be demonstrated at Ottawa. It is proposed to run a motor car by this new force.

FORD CITY:—The council of Ford City, Ont., at its last meeting voted unanimously for the amalgamation of their town with Walkerville, the chief object being economy and facility in installing town improvements. If Walkerville adds the industries of Ford, such as the Ford Motor Co., the Fisher Body and Studebaker Corporations, etc. to those already there, which include the General Motors, Ltd., Canadian Bridge Co., and Hiram Walker and Sons, it will be one of the principal industrial centers of Ontario.

QUEBEC

QUEBEC:—John Millen and Son have opened an automotive equipment branch at 96 Crown Street, Quebec, in charge of N. Y. Cloutier.

SASKATCHEWAN

REGINA:—Hurley's garage is the name of a new business opened recently.

PRINCE ALBERT:—A new concern, the Everett Mitchell Battery Service, has opened for business here.

SASKATOON:—J. J. Olmstead, who last year was associated with the Williams Motor Co., and previous to that ran Olmstead's garage for seven years, is now with the Auto Clearing House.

APPOINT DISTRIBUTORS

THE LOUDEN Machinery Company, Guelph, Ont., have made some changes in the distribution of their products in Western Canada. The Winnipeg branch has been closed and sales have been taken over by the Alberta Dairy Supplies, of Edmonton and Winnipeg. The Winnipeg manager for the Alberta Dairy Supplies is H. S. Creighton.

W. R. Mills, who was formerly manager for the Loudon Company at Guelph, has been transferred to Guelph to do special work in connection with the factory equipment department.

ALBERTA TAXES GASOLINE

THE LEGISLATURE of Alberta recently passed a bill to place a tax of two cents per gallon on all the gasoline sold in that province. The tax came into effect on April 1, and will be collected from the leading oil distributing companies. These companies are required by this legislation to make monthly returns on sales.

LETERAIN

Let's go!



"Leterain"
is the World's Recognized
Windshield Cleaner

We guarantee "LETERAIN" to keep your windshield clear during TWELVE HOURS under the heaviest rain or fog and to positively last a whole year, or we'll refund the money. It is the only recognized successful windshield cleaner on the market and stands in a class by itself. It can be used on either wet or dry glass and will give equal satisfaction. Packed in a POCKET SIZE CONTAINER to preserve it from grease or dust when carried in your automobile.

MAIL ONE DOLLAR

and drive your car in safety and with comfort for a whole year under the worst weather. Remember it will keep your entire windshield clean.

Sole Canadian Licensee

The "Leterain" Sales Company
180 St. James Street Montreal, Que.

Territorial agents and dealers write for best proposition in the Automotive Field.



Overland

\$825



Low First Cost: Low Upkeep Low Depreciation

Overland price speaks for itself.

Overland upkeep is low because it gives owners 26 to over 30 miles to the gallon of gas, with exceptionally high oil and tire mileage—\$4.00 a week is the average cost of running this car 100 miles.

Low depreciation is due to the superior quality of materials and workmanship you buy in the car.

1922 PRICES

Touring	\$825
Roadster	825
Coupe	1,295
Special	
Sedan	1,395

F.O.B. Toronto
Sales Tax Extra

*Good Openings for Responsible and
Aggressive Automobile Merchants*

WILLYS-OVERLAND LIMITED

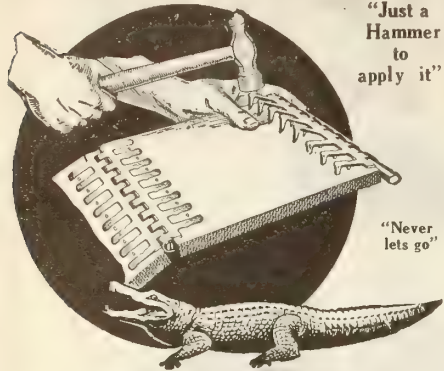
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Branches: Toronto Montreal Winnipeg Regina

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TRADE MARK REG. U.S. PAT. OFFICE

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Sell size 35 for five ply belts, size 27 for heavy four ply, size 25 for medium single leather or light 4 ply fabric belts. A complete range of sizes for all farm belts described in our circular.

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What the "S.V." Sign of Value Trademark Means

From yours, the dealer's end, it means handling a line that is universally recognized as the best obtainable.

From your customers' end, it further establishes the feeling of confidence in your general service, for "VESSOT" products live and last.

You profit in cash and many other ways. Take on a full line to-day.

Write the nearest branch of THE INTERNATIONAL HARVESTER CO. of Canada, for full particulars and prices.



S. Vessot & Company

Inventors & Manufacturers

Joliette, Que.

OVER 35 YEARS OF SUCCESS

NEW GRAY-DORT BRANCH AT SASKATOON

SASKATOON:—Gray Campbell Co., Ltd., of Moose Jaw, distributors in Western Canada for Gray Dort cars, announce the opening of a new branch at Saskatoon, located at 447 2nd Ave., Saskatoon's business thoroughfare. They have plate glass frontage of fifty feet with spacious garage entrance. The show room is finished in polished hard wood, palms and ferns being artistically arranged enhancing the beauty of the car display.

The administrative offices adjoin the show room and are arranged en-suite; these are finished in dark oak.

The garage is steam heated, well lighted and has a capacity for seventy-five cars. In the rear of the garage a modern and up-to-date repair shop has been installed. This is under the supervision of an expert mechanic, "Wally" Weatherhead, well known in this city.

In a well arranged parts room adjoining the garage a complete line of parts is carried. This important department is in the care of George C. Lane, formerly of headquarters at Moose Jaw.

D.L. MacQuarrie the branch manager is well known in the automobile industry. He was much surprised at the large number of visitors they had on opening week and has decided to keep the show rooms open until ten o'clock each night allowing inspection to those unable to inspect the cars during the day.

The sales force is composed of Duncan McKillop, who is in charge of the outside territory, H. E. Dillon and E. J. O'Mally, who are handling the retail sales in the city.

CANADIAN TRADE SHOWS IMPROVEMENT

THE Wall Street Journal of April 28, in a general review of the exchange situation as it affects Canadian funds says: "Rise in value of Canadian funds during the past 15 months is due to several reasons. Rise of sterling exchange, and consequent and the United States are Canada's has had a notable influence. England and the United States are Canada's two best customers and the relations of the three countries have been fast approaching normal. Canadian trade has shown distinct improvement. For 1921 there was a small export balance, which was unexpected at the beginning

of the year. Since January Canada has had an import balance, although a small one. It has been estimated that April trade figures will show an export balance as grain shipments have been exceptionally large. The factor which has had probably the greatest influence has been Canada's capital imports. In 1921, out of financing which totalled about \$400,000,000, about \$182,000,000 was floated in United States, and \$16,500,000 in England. Loans floated in the United States in 1919 and 1920, were even greater than in 1921. So far this year Canadian financing here has been in good volume, although Canadian bonds held here which mature this year total about \$62,000,000, most of them are expected to be refunded."

I. H. C. TRUCK SALES

AN INTERESTING side-light on business conditions in general, and particularly in the automotive field, is found in the figures shown by the International Harvester Company of America on the sale and delivery of International motor trucks this year.

Up to April 1st, a total of 1651 carloads of International motor trucks have been shipped from the truck factories at Akron and Springfield, Ohio, to be delivered to purchasers. Of the total, 892 carloads were shipped west of the Mississippi River and 759 carloads were for delivery east of the river. These carloads would make a single train fourteen miles long or thirty-three average trainloads of fifty cars each. The freight charges approximate \$247,000.

If all these trucks were placed in service at one time they would be capable of moving the 12,000,000-bale cotton crop of the entire United States, the usual average haul, in twenty working days. The mileage to accomplish this task would amount to 10,000,000 miles, a distance equal to 400 times around the earth at the equator.

In giving out these figures the Sales Department indicated that the satisfactory growth in truck business was partly due, at least, to, the free inspection service which has been in force at the ninety-two Company branch houses for over two years.

International motor truck owners say that service is the king pin in motor truck hauling and that the International ninety-day inspection service is a real safeguard against hauling delays.

T. H. RIEDER, PRESIDENT OF AMES-HOLDEN CO., DIES

FOLLOWING an illness of about ten days, T. H. Rieder, president of the Ames-Holden and McCready Co., died last week at his home in Montreal. Mr. Rieder was born in New Hamburg, Ont., August 10, 1878.

He was educated in the public and high schools of Kitchener. He engaged in general store business with his father, 1892-1897; became stenographer for Kitchener Gas Company and L. Briethaupt estate, 1898, and gas and electric meter reader and collector, 1898-1900. He was bookkeeper and director of the Kitchener Rubber Manufacturing Company, 1900-1903. He organized and built and was managing director of the Merchants Rubber Company Limited, 1903, 1906.

The Kitchener Rubber Manufacturing Company and the Merchants Rubber Company, Limited, were absorbed in 1907 by the Canadian Consolidated Rubber Company, Limited, at which time Mr. Rieder became vice-president and manager of both Kitchener companies. He was elected vice-president of the Canadian Rubber Company, Ltd., 1908, directing all operations of the company. In 1915 he was made vice-president and general manager, and president and general manager in 1917. In the year 1919 he resigned from the rubber and felt companies to accept the presidency of the Ames-Holden-McCready, Limited, and its subsidiaries.

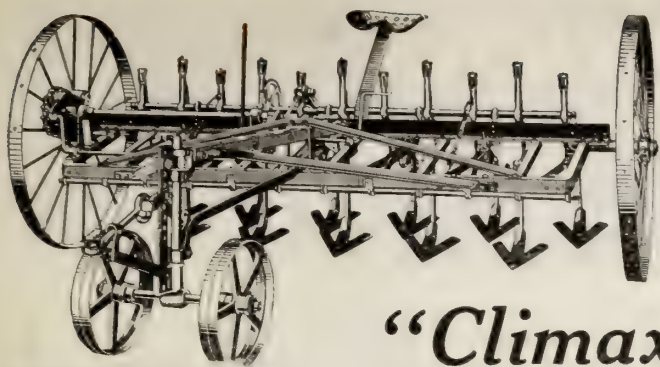
CANADIAN FORD INCREASES OUTPUT

ACCORDING to a report issued by the Ford Motor Co., the output of the Canadian plant for the first quarter of the year exceeded last year's first quarter by more than 1,000 cars in February and 1,300 in March. It is understood that the company is launching the greatest sales campaign in its history. Selling forces have been completely reorganized and a house-to-house canvass will be made. There are 685 dealers in the nine Canadian branches.

Output of the parent company for the first quarter amounted to 160,352 trucks and cars, compared with 127,084 for the corresponding period of 1921. The outstanding feature of the gains over last year was in foreign plants, which, exclusive of the Canadian unit, built 14,000 cars and trucks in the first quarter of this year, compared with 3,779 for the same period last year.



This shows some of the "Ask 'Em to Buy" salesmen from Toronto's jobbing houses, lined up in front of the Russell Gear and Machine Company, whose guests they were. The occasion was a demonstration of Billmont Wrenches. From left to right: Joe Carley, Aikenhead Hardware, Ltd.; R. Weese, John Millen & Son, Ltd.; H. A. Clerk, Millen's; W. H. Qua, General Supply Co., of Canada; H. G. Soules, Aikenhead's; F. Andrews, Aikenhead's; Bob Grossi, Cutten & Foster, Ltd.; George Braden, sales manager, Russell Gear & Machine; Charlie Robinson, Cutten & Foster; Andy Fleischer, Cutten & Foster; H. M. Smail, Millen's; F. G. Jones, Millen's; David Ayr, general manager, Russell Gear & Machine; "Scotty" Ross, Cutten & Foster; E. M. Cotter, Millen's; and Tommy Bellisle, purchasing agent, Cutten & Foster.



Frost & Wood

"Climax" and "Champion" Cultivators

Stiff-Tooth

Spring-Tooth

Your customers know that thorough cultivation is the greatest aid to the production of satisfactory crops. Show them the many advantages of these cultivators for Spring and Summer cultivation.

"Climax" Stiff Tooth Cultivators are great weed destroyers. They're unequalled for ridding fields of twitch grass and keeping the land free of other noxious weeds. The best cultivator on the market for summer fallowing.

"Champion" Spring Tooth Cultivators have strength and capacity for heavy, hard work. Teeth are highest quality and strongly reinforced. Sections work independent of each other so all ground is uniformly tilled.

Either type supplied with Power Lift and Tractor Hitch when desired. Ask our nearest branch for further particulars. There is real business in these lines, **now**, to the dealer who pushes for it.

The Frost & Wood Co., Limited

Smiths Fall, Ontario

Montreal, Que. Quebec, Que. St. John, N.B. Truro, N.S. Charlottetown, P.E.I.
Sold in Western Ontario and Western Canada by

Cockshutt Plow Company, Limited

Brantford

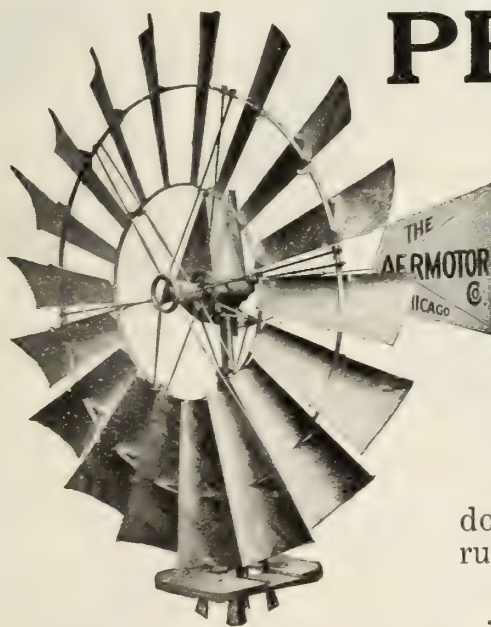
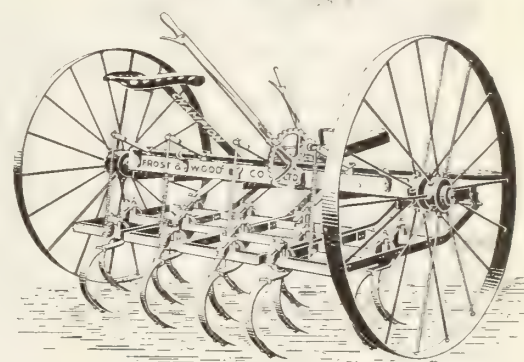
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PROFITS

Every month of the year
SELLING THE

Auto-Oiled Aermotor

We believe that more real profit is made from the sale of Aermotors than any other line of farm equipment. The discount to the dealer is liberal and he doesn't have to spend all of his profit in running back to make the outfit satisfactory. The Auto-Oiled Aermotor, when once properly erected, requires no further attention from the dealer.

REMEMBER that the Auto-Oiled Aermotor is the Genuine double-gear, self-oiling windmill, with gears inclosed and running in oil.

Oil it once a year and it is always oiled. After 7 years of use in every part of the world, it has proven its ability to run 2 or 3 years, or even longer, with one oiling and without its ever being necessary for anyone to go on the tower.

The Aermotor gives more service, with less attention, than any other piece of machinery on the farm. The Aermotor is skillfully designed, well made, and backed by a company which has a reputation for doing things right.

If there isn't a live Aermotor dealer in your town, write us today

Aermotor Company, 2500 Roosevelt Road, Chicago, U. S. A.

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This directory will help you with your buying and your planning. The advertisers listed here are thoroughly reliable and leaders in their respective fields. They are looking for live, wide-awake representatives. Study their advertisements carefully because they contain valuable information which will dovetail with your plans. We are glad to go to the trouble of arranging this list—to make it easy for you to select new lines. If it so happens that what you want is not here, write us, and we will tell you where to get it.

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Geo. H. Broughton, Toronto.
Canadian National Carbon Co., Toronto.
Cochran Foundry and Machine Works, Tillsonburg, Ont.

A. B. Jardine & Co., Ltd., Hespler, Ont.
Kemp Metal Auto Wheel Co., Toronto.
Leterain Sales Co., Montreal.
Motor Necessities, Ltd., 231 Somerset St., Winnipeg.
Pressure Proof Rings Co., Montreal, Que.
Penetang Carriage Co., Penetang, Ont., and Toronto.
Richardson & Bureau, Montreal, Que.
Shaw Auto Salvage Parts Supply Co., Toronto.
Thexton Machine Wks., 736 Dundas St. E., Toronto.

AUTOMOBILE WHEELS

Kemp Metal Auto Wheel Co., Toronto.

AUTOMOBILE TIRES

BALING PRESSES

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

BEET MACHINERY

John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

BEARINGS

BINDERS

Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

BELT LACINGS

Flexible Steel Lacing Co., Chicago, Ill., and London, Eng.

BRAKE LINING

Richardson & Bureau, Montreal, Que.

BATTERIES

Canadian National Carbon Co., Toronto.

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Cockshutt Plow Co., Ltd., Brantford, Ont.
Penetang Carriage Co., Penetang, Ont., and Toronto, Ont.

CREAM SEPARATORS

De Laval Co., Ltd., Peterboro, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto

CORN HARVESTERS

Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

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John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
Peter Hamilton Co., Ltd., Peterboro, Ont.

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Cockshutt Plow Co., Ltd., Brantford, Ont.
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CRANES (Floor)

A. B. Jardine & Co., Ltd., Hespler, Ont.

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De Laval Co., Ltd., Peterboro.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
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Cockshutt Plow Co., Ltd., Brantford, Ont.
John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

DRILLS, GRAIN

International Harvester Co., of Can., Ltd., Hamilton, Ont.

DUMP BODIES

Dominion Truck Equipment Co., Ltd., Kitchener, Ont.

ELECTRICAL EQUIPMENT

Canadian National Carbon Co., Toronto.

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Cochrane Foundry and Machine Wks. Tillsonburg, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
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London Gas Power Co., London, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.

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A. B. Jardine & Co., Ltd., Hespler, Ont.

ENSILAGE CUTTERS

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J. I. Case Threshing Machine Co., Inc., Racine, Wis.

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Aermotor Company, Chicago, Ill.
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Cockshutt Plow Co., Ltd., Brantford, Ont.
Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto

FLOOR CRANES

A. B. Jardine & Co., Ltd., Hespler, Ont.

GRINDSTONES

S. Vessot & Co., Joliette, P.Q.

GRINDERS

International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto
S. Vessot & Co., Joliette, P.Q.

HARROWS

Cockshutt Plow Co., Ltd., Brantford, Ont.
Frost & Wood Co., Ltd., Smith Falls, Ont.
John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
Whitney Tractor Co., Cleveland, Ohio.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.

HAY LOADERS

International Harvester Co., of Can., Ltd., Hamilton, Ont.
Cockshutt Plow Co., Ltd., Brantford, Ont.
Frost & Wood Co., Ltd., Smith Falls, Ont.

HAY PRESSES

International Harvester Co., of Can., Ltd., Hamilton, Ont.
Birdsell Mfg. Co., Toronto and South Bend, Ind.

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Dominion Truck Equipment Co., Ltd., Kitchener, Ont.

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International Harvester Co., of Can., Ltd., Hamilton, Ont.

MOWERS

Frost & Wood Co., Ltd., Smith Falls, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

MILKING MACHINES

De Laval Co., Ltd., Peterboro.
R. A. Lister Co. (Canada), Ltd., Toronto

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Spramotor Co., London, Ont.

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Cockshutt Plow Co., Ltd., Brantford, Ont.
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J. I. Case Threshing Machine Co., Inc., Racine, Wis.

POWER AND LIGHT EQUIPMENT

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SILLO FILLERS

International Harvester Co., of Can., Ltd., Hamilton, Ont.
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De Laval Co., Ltd., Peterboro.
R. A. Lister Co. (of Canada), Ltd., Toronto, Ont.

SPRAYING EQUIPMENT

SPREADERS, MANURE

Cockshutt Plow Co., Ltd., Brantford, Ont.
John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

SPARK PLUGS

Russell Gear & Machine Co., Ltd., Toronto.

SPRINGS

STACKERS

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

STARTERS

Universal Battery Co., Chicago, Ill.

STAMPINGS

TRACTORS

Advance—Rumley Thresher Co., Inc., Toronto, Winnipeg, Calgary.
Cleveland Tractor Co., Cleveland, Ohio.
Gary Motor Truck Co., Toronto.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto
Whitney Tractor Co., Cleveland, Ohio.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.

TRACTOR PLOWS

Cockshutt Plow Co., Ltd., Brantford, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
Cleveland Tractor Co., Cleveland, Ohio.
John Deere Mfg. Co., Ltd., Welland, Ont.

TOOLS

Butterfield & Co., Rock Island, Que.
Windsor Machine and Tool Works, Windsor.
Russell Gear & Machine Co., Ltd., Toronto.

THRESHERS

Advance—Rumley Thresher Co., Inc., Toronto, Winnipeg, Calgary.
Birdsell Mfg. Co., Toronto and South Bend, Ind.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.
R. A. Lister Co. (Canada), Ltd., Toronto

TIRES

TWIST DRILLS

Butterfield & Co., Rock Island, Que.

TRAILERS

Dominion Truck Equipment Co., Ltd., Kitchener, Ont.

TRUCKS

Beaver Truck Corporation, Ltd., Hamilton.
Dominion Truck & Equipment Co., Ltd., Kitchener, Ont.
Gary Motor Truck Co., Toronto.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.
Ruggles Motor Truck Co., Ltd., London.

TRUNKS

Lamontagne, Ltd., Montreal.

WAGONS

Cockshutt Plow Co., Ltd., Brantford, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

WRECKING CRANES

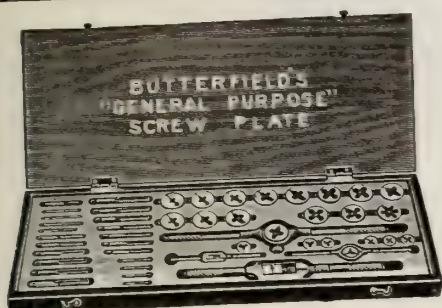
A. B. Jardine & Co., Ltd., Hespler, Ont.

WINDMILL

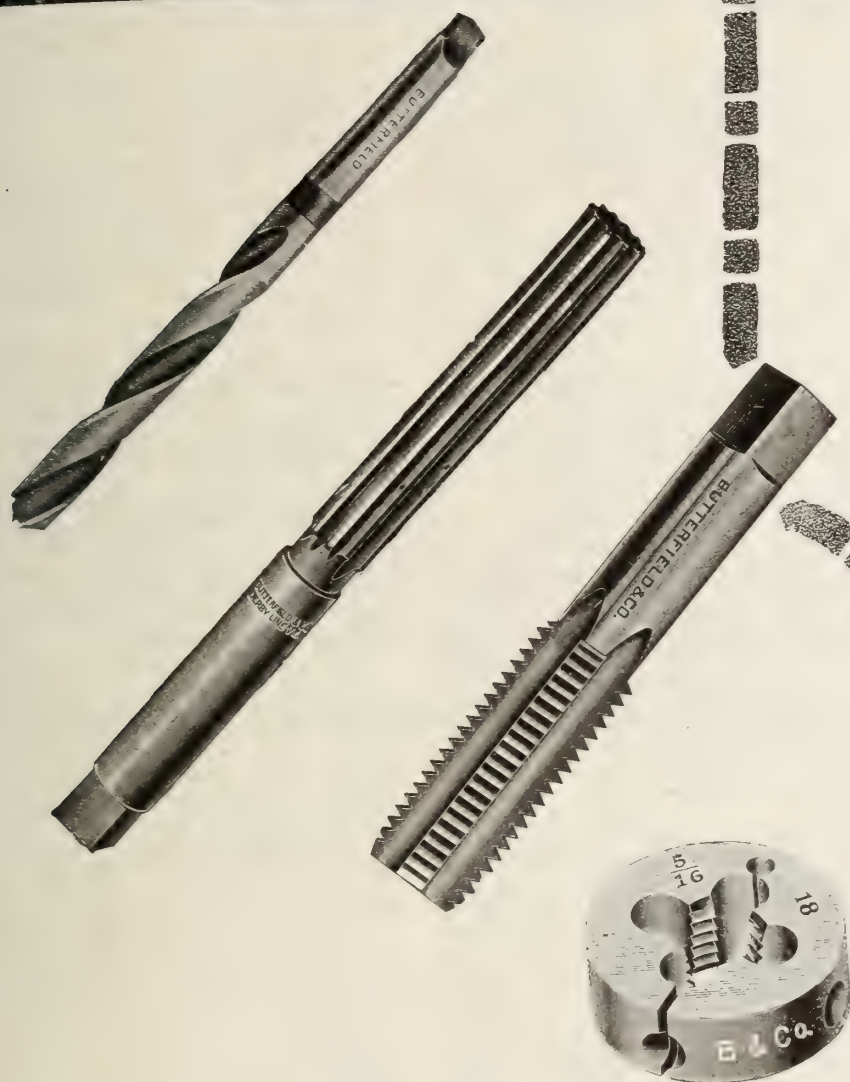
Aermotor Company, Chicago, Ill.

*"The Tools You
Buy Again"*

BUTTERFIELD



**Drills
Taps
Dies
Reamers
and
Milling
Cutters**



Garage Necessities

Besides our Drills, Reamers and Cutter, etc., we wish to draw the attention of the garageman to our general purpose Screw Plates. The set illustrated at the top of this advertisement was designed to meet the demand for an assortment of Taps and Dies that would enable every garage to handle **any** job brought in.

Garagemen are advised to send for illustrated folder, from which he can study the contents of this set. He will be convinced that nothing has been left out. It is complete, and BUTTERFIELD QUALITY has been built into every tool.

BUTTERFIELD & COMPANY, ROCK ISLAND, P. Q.

TORONTO OFFICE: 220 King Street W.

Sell the line already half sold

The Right Moment

The milking season is now on

—Your harvest time for sales of

Melotte Cream Separator and Lister Milking Machine

Later on the farmer may begin to think he can pull through another season without a Melotte or Lister Milker. Concentrate on vigorous work now.

*If you don't sell the Lister Line,
why not write for agency proposi-
tion for these best sellers now?*

R. A. Lister & Company
(Canada) Limited
Toronto and Winnipeg

**The Farm Tractor can be made
more profitable by using it more
days of the year—**



Every Dealer has Farmer patrons who own idle tractors. Clover Seed is a good crop and a Tractor hitched to a Birdsell Huller makes a paying combination. Your community may need a Clover Huller this year. Your opportunity.

BIRDSELL-GEHL SILO FILLERS ANN ARBOR HAY PRESSES

You may have need of some of these machines. We can supply promptly from our warehouses here. A full line of repair parts also carried here.

Our traveler will see you whenever his services are required. Write us when you have live prospects.

BIRDSELL MANUFACTURING CO., Toronto, Canada
Foot of George Street.

Dairy and Household Supplies

Increase Your Profits by Selling Electric Plant Accessories

DISTRIBUTORS of farm electric plants find a ready sale for the appliances which can be used with them. Fixtures, lamps, electric motors, vacuum cleaners, power washers, electric pumps, etc., enjoy a ready sale. The dealer who sells light and power plants finds the sale of accessories in proportion to the number of plants distributed in a community; for the owner of a plant quickly experiences the advantages of electrical service, and is willing to buy various accessories which permit him to derive full service from his generating plant. The sale of lamps, alone, results in better profits. The various accessories result in repeat orders for the dealer.

The sale of accessories widens the dealer's sales field. The distribution of generating plants, alone, is profitable; but most dealers are reaching for the extra profits which are assured when a line of modern accessories is added to their stock. The dealer who sells electric plants and accessories has a decided advantage over the dealer who sells accessories only. The latter is at a disadvantage because his sales field is restricted by the number of electric plants other dealers distribute in the territory. The farmer prefers to buy accessories from the dealer who installed his power plant. The more plants a dealer sells, the greater the demand for appliances. The sale of an electric plant is merely the first link in the "sales chain" which binds dealer and customer together.

While the sale of accessories offers unusual favorable opportunities for creating a profitable business, it is necessary for the dealer to adopt aggressive selling methods in order to keep his stock moving. The owners of light and power plants are liberal buyers of accessories when they become familiar with their value, but some farmers are not familiar with the wide range of service a power plant offers when the necessary accessories are used. It is well to remember that the sale of electrical specialties in cities has been accelerated through advertising and educational campaigns on the part of dealers and manufacturers. Publicity in rural districts will be fully as beneficial as it has proven in cities. It is necessary to induce farmers to view these modern accessories as necessities. Some electrical specialties which in fact are staple commodities are regarded as novelties by farmers. Publicity will bring the practical utility of such appliances to the attention of farmers, and accelerate sales.

Systematic effort on the dealer's part will awaken the buying impulse in the minds of farmers. The first essential is to keep accurate record of each power and light plant owner in the territory. The dealer who knows of every electrical plant installed in his territory can estimate the probable demand for appliances, and govern his sales efforts accordingly. Having compiled an up-to-date mailing list, the dealer is prepared to employ direct mail advertising advantageously. Manufacturers will supply advertising matter, and the dealer may have his firm's name printed upon the folders and other publicity matter. Thorough distribution of this publicity matter will awaken the interest of farmers in the popular accessories offered by the dealer.

Demonstration of the accessories is a valuable sales aid. Power washers, vacuum cleaners, utility motors, etc.,

readily lend themselves to purposes of demonstration, and offer the farmer an opportunity to appraise their value. The various accessories may be offered farmers for trial in their homes. Their practical value usually clinches sales, and it is advisable for dealers to employ this method for educating farmers to the wide range of service offered by modern electrical specialties.

It is necessary for the dealer to show that electric power is applicable to numerous varieties of farm work, and meets conditions on farms more successfully than any other form of power. It should be the salesman's ambition to induce farmers to get full service from their electric plants. The only way they can "harness" the current successfully is through the use of modern accessories.

Occasionally the dealer's stock of accessories will sell a generating plant. A farmer who isn't conversant with the wide range of service offered by electricity can be convinced of the general utility of this power source by showing him the various applications which are operated economically by electrical current.

When we sort out the different kinds of work on the farm we find that many jobs can be handled with electric motors. The farmer's wife successfully uses electric motors for various cooking and heating appliances such as toasters, irons, foot warmers, etc., as well as for operating washing machine, vacuum cleaner, sewing machine, meat chopper, and other household equipment. This gives the dealer a chance to make a substantial profit from the sale of electrical equipment for household use.

The salesman who knows his line makes the most sales; it is necessary to study the desirable features of electrical accessories so prospective customers will be impressed with the dealer's arguments. Consider, for example, the interesting points found in the small electric motor. The sale of motors merits the dealer's best attention. The service given by the power washer, for example, depends upon the reliability of the motor used for its operation. Dealers find it advantageous to feature the reliability of the motors they sell. The prospective customer is looking for reliable equipment which appears to be practical, and adapted for his needs.

"The washing machine is the most popular electrically operated household device I sell," explained a dealer. "Prospective customers know that a power washer subjects the electric motor to severe service. When demonstrating this equipment to a prospective customer I explain that the motor in question exerts a strong pull on the driving mechanism of the washer when starting it in operation. This is a strong argument in its favor: for a washer filled with wet clothes offers heavy resistance at the moment of starting. I also explain that the motor has sufficient over-load capacity to handle the machine when it is filled with clothes. I show the customer why the motor will give long service because it is built for hard service.

"The dealer who starts selling accessories now can attract the attention of prospective customers with less effort than will be required when competition is keen. The way to build up a profitable trade in accessories is to lay in a stock of popular leaders, then advertise and demonstrate them."



"Canvassing is the only way the dealer can really get acquainted with his customers and their requirements"—

GEO. G. MILL CO.

These wide-awake dealers of Great Falls, Montana, go on to say: "We have handled the De Laval Line continuously for over 25 years. We have canvassed our territory thoroughly since locating here and have become acquainted in that way with some of our best customers. We have never regretted a single trip that we have made out in the country"

Canvassing with the De Laval Line brings quicker turnover, larger profit, more friends and more credit information.



The De Laval Milker

Both save time and eliminate drudgery twice a day, 365 days a year.

Both increase the quantity of the product.

Both improve the quality of the product.

Both are made by the De Laval Company, the oldest, largest and best-known manufacturer of its kind in the world.



The De Laval Separator

THE DE LAVAL COMPANY, LTD.

MONTREAL PETERBORO WINNIPEG EDMONTON VANCOUVER

Sooner or later you will sell the
De Laval



It does not Break!
It does not Warp!



**Made of
Special
Steel**

*Stronger and
Cheaper than
Wheels of Wood*

KEMP METAL AUTO WHEEL

IN APPEARANCE the Kemp Metal Auto Wheel resembles the wood artillery wheel. But it is cheaper and incomparably stronger. The spokes are metal die cast tubes of a special steel of unusual density and hardness.

The spokes are firmly held by compression, and are not weakened by having pins, bolts or rivets pass through the ends, nor by threaded ends. In addition they are so mounted as to give considerable resilience to the wheel without rattling or springing the rim or felloe band. The result is a wheel of medium weight, fine appearance, and unequalled strength and at a lower price than a wood wheel.

Because of its scientific design, because it is made of a special steel of great strength the Kemp Metal Auto Wheel neither warps nor breaks like a wooden wheel when put to severe strains and shocks. It has been put to all the necessary tests to prove its strength and has never failed. It has been demonstrated at many shows and experts agree that all automobiles will eventually be equipped with Kemp Steel Wheels.

As a garageman, jobber or dealer you can't fail to see the profitable advantage of selling this wheel. The field is big and sales unlimited.

SECURE AGENCY NOW

The Kemp Metal Auto Wheel Co., Limited

122 Richmond Street West, Toronto

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

Published Monthly by THE MACLEAN PUBLISHING COMPANY, LIMITED, TORONTO

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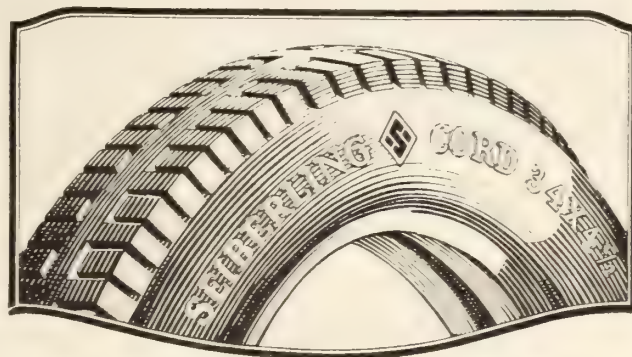
NEW YORK, 1133 Broadway, Phone Watkins 5869.

BOSTON, 734 Old South Bldg. CHICAGO, 405-6 Transportation Bldg.

VOL. IV, No. 6

TORONTO, JUNE, 1922

Subscription Price
\$2.00 Per Year



Announcement

When a group of foremost men in the tire making industry combine their experience in the development of a new tire—you may expect an advance in tire efficiency.

When these men are equipped with the experience of 23 years in developing the best features making good on the roads to-day, you may know for certain that this advance is **worth while**.

Frank A. Seiberling and his associates have built and sold more cord tires than any other group of men in the industry.

There are about 200 makes of tires on the market—200 lessons on what is good and what isn't good. The Seiberling Company has concentrated all this experience and all these lessons into the perfection of

SEIBERLING CORDS

EPOK INNER
TUBES

—the tubes with fabric lining. Without this unique reinforcement and long life feature EPOK Inner Tubes would be as good as the best. With it, EPOK Inner Tubes stand alone. If there is no agent in your community write us.

The Premier Tire and Rubber Company, Limited, considers itself highly fortunate in being appointed distributors.

We want to share our good fortune with better class dealers.

We want you to know that agencies are fast being allotted and that you should lose no time in getting acquainted with the details.

Write us at once for full particulars and agency proposition.

Premier Tire & Rubber Co., Limited

116 Adelaide Street West, Toronto

Makers of EPOK Inner Tubes—the tubes with fabric lining

Head Office; 116 Adelaide St., West, Toronto. Factory: Beamsville.

Distributors for Kil-nock Adjuster, Go-ite Gas Gauge, Condor Lamp Bulbs, Violet Ray Lens, Lodge Spark Plugs.



The Sign of a Profitable Oil Business

If you are already handling Imperial Polarine Motor Oils (as you probably are) you can increase your sales by marking your store with suitable signs and by arranging proper displays to let the automobile, truck and tractor owners in your territory know that you sell these high grade lubricants.

Don't forget to hang up the Imperial Chart of Recommendations in a prominent place. It is important that you show every owner that you are equipped to sell him the proper grade of Imperial Polarine Oils for his different motor units.

More and more engine owners are turning to Imperial Polarine Motor Oils every day. Advertising now running in all of the leading papers will augment the demand this year. Hang out the Imperial Polarine sign and you can cash in on this demand.

Our salesman will gladly see that you are supplied with signs, charts and other equipment needed to make your store "lubrication headquarters" in your district. Take it up with him the next time he calls.

Sell The Five Grades

IMPERIAL POLARINE OIL
(Light Medium Body)

IMPERIAL POLARINE
MEDIUM OIL
(Medium Heavy Body)

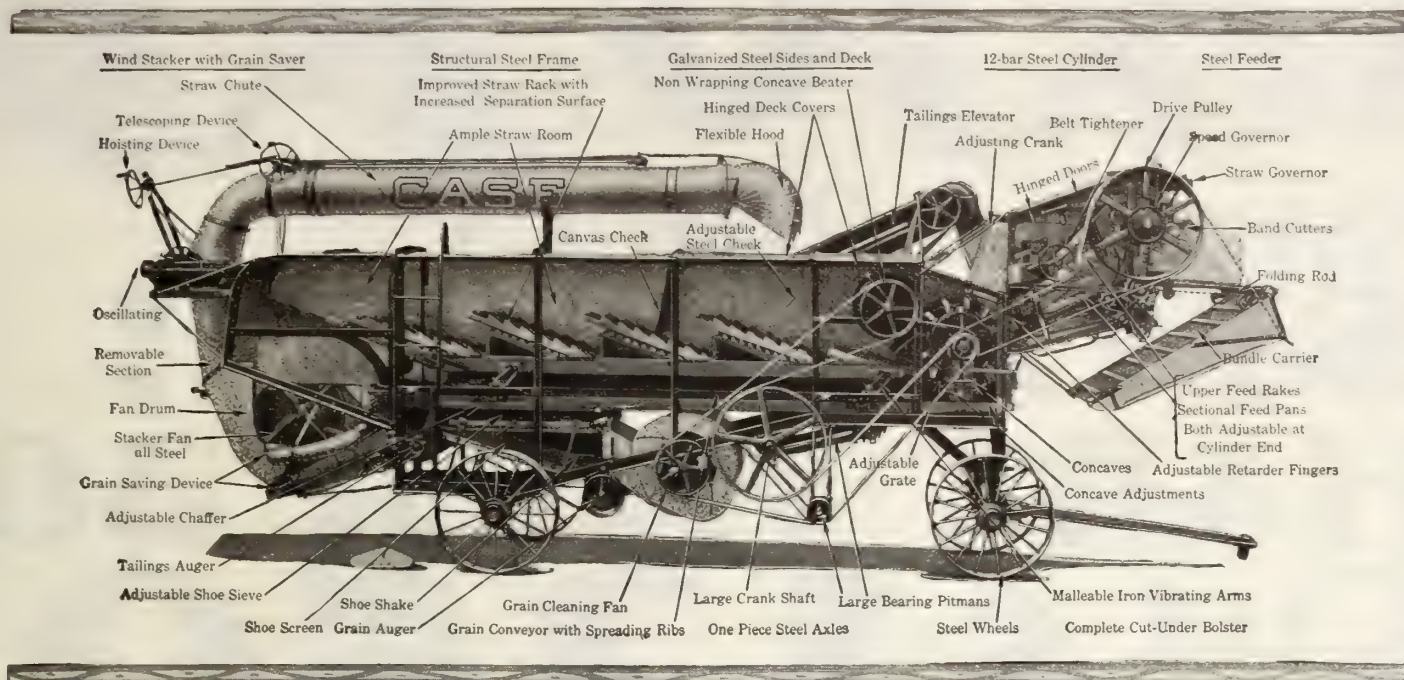
IMPERIAL POLARINE
HEAVY OIL
(Heavy Body)

IMPERIAL POLARINE
SPECIAL HEAVY OIL
(Special Heavy Body)

IMPERIAL POLARINE
EXTRA HEAVY OIL
(Extra Heavy Body)

IMPERIAL OIL LIMITED

*Manufacturers and Marketers of Imperial
Polarine Motor Oils and Marketers in
Canada of Gargoyle Mobiloil*



Quality More than any other class of buyers, farmers want efficient machinery, and before they buy they want to be shown why the machine is efficient. The dealer who sells Case Steel Threshers has a machine of the highest quality in its line. In their construction he can point to the many exceptional features that have made Case threshers famous.

Some of the outstanding qualities of Case threshers that will appeal to experienced farmers and threshermen are—

STEEL CONSTRUCTION assures permanent efficiency. Great strength and rigidity of frame resist all twisting or wearing strain to which a threshing machine is constantly subjected.

LONG LIFE. The average life of a Case thresher is easily 20 years. Most of the first Case steel machines sold in 1904 are still in use and the machines built today are even more durable. Compare this with the life of the average farm machine you sell. This is a great selling advantage.

SELF ALIGNING BEARINGS are used in all important places. This type of bearing contributes to smooth, easy running, requires less attention and is more easily replaced than the other bearings. Compare these bearings with ordinary bearings on grain threshers.

CASE FEEDERS have many practical advantages found in no other feeder. They will absolutely feed any kind of grain that is fit to thresh, evenly and without slugging. Every kind of seed and grain can be threshed with Case threshers. They thresh fast and save the grain.

A STANDARD MACHINE. More grain is threshed every year with Case threshers than any other make. Every farmer knows Case threshers and prefers to have his work done with Case machines. Case machines are standard machines and have the highest resale value.

In addition to having a superior product to sell, Case dealers have many other advantages. A new plan for developing thresher sales is now being offered all Case dealers. See the Case salesman or write for details of this plan.

J. I. CASE THRESHING MACHINE COMPANY

Dept. U216

(Established 1842)

Racine

Wisconsin

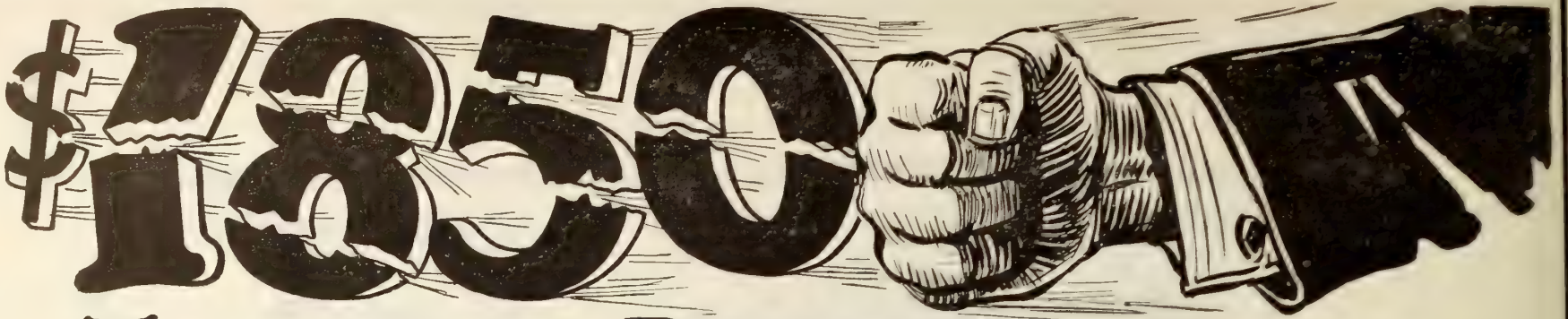
Factory Branch: Toronto, Ontario.

NOTE:—Our plows and harrows are NOT the Case plows and harrows made by the J. I. Case Plow Works Co.



CASE
TRADE MARK REG. U. S. PAT. OFF.
POWER FARMING
MACHINERY



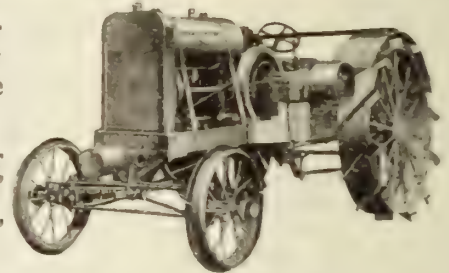


TRACTOR PRICES SMASHED! HART-PARR "30" Cut to \$1250

F. O. B. WINNIPEG

Hart-Parr Company has, for twenty-one years, led the world in tractor quality. This price cut is made on the same quality tractor, with many improvements, which in the last few years has spectacularly won the economy and power tests.

Just think of a \$600 cut on this tractor from the 1921 price. Only our exceptional financial condition and our ability to build the Hart-Parr "30" in sufficient quantities to meet the demand which the new price will create, permits us to make this reduction.



We are determined to maintain, not only our lead in the tractor business, but to price the Hart-Parr "30" so low that every farmer can own one. This new price gives the world the cheapest farm power known.

New Contract Best Ever Offered

It gives the dealer an exclusive territory, large or small, as desired. It is very liberal in discounts. It provides for extreme co-operation in sales, advertising and service. This price reduction will be advertised in farm papers throughout Canada. We have no inventory on hand. The demand will tax the output of our large, modern factory to the limit. The Hart-Parr Contract is going to be a mighty profitable one. Someone in your vicinity is going to see the wonderful opportunity it offers. If you want it, act quick; write or wire now for territory reservation.

HART-PARR COMPANY
Founders of the Tractor Industry
494 Lawler Street, Charles City, Iowa

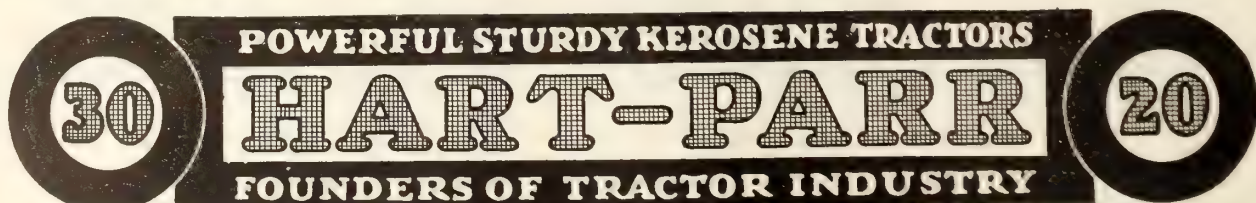
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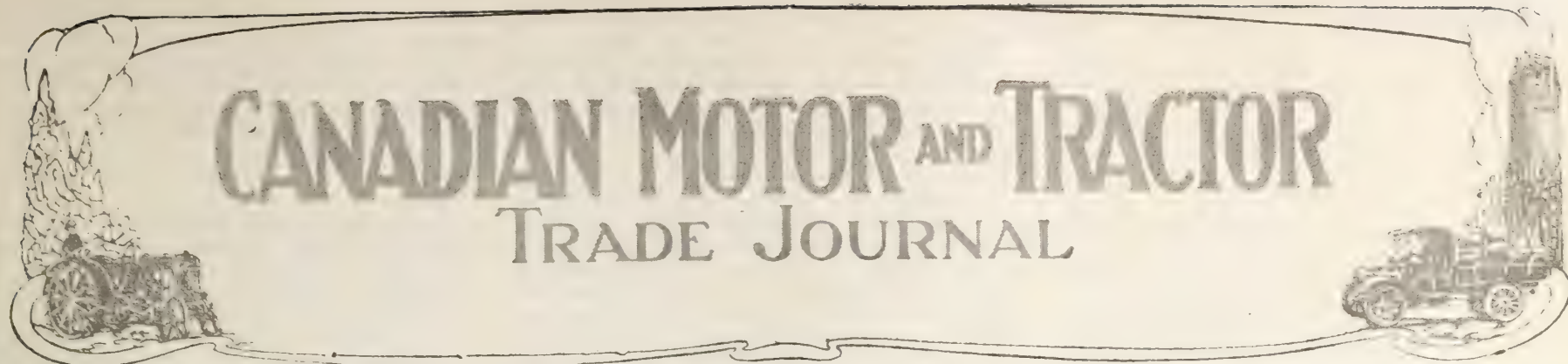
Hart-Parr Company Branch, Regina, Sask. John Goodison Thresher Co., Sarnia, Ont.; United Engine & Threshers, Calgary, Alta.; Barney Baker Company, Ltd., Regina, Sask.; Barney Baker Company, Ltd., Winnipeg, Manitoba.

SUB DISTRIBUTOR, SALES AND SERVICE
F. N. MacDonald & Co., Ltd., Winnipeg, Man., 156 Princess Street.
The Tillsoil Company, Winnipeg and Regina.



Many of the old Hart-Parrs that plowed the virgin prairies of the Northwest are still in use today. The great grand-daddy of all Tractors was old Hart-Parr No. 1, built in 1901.





Volume 4

TORONTO, JUNE, 1922

Number 6

Automobile Trade Hard Hit by New Taxes

Dealers and Manufacturers Say Excise Tax Severe Blow to Industry and May Slow Up Sales. Tax Applies on Canadian Made Cars on Manufacturers' Price to the Dealer and on the Duty Paid Value in the Case of Imported Cars.

THE BUDGET presented by the Minister of Finance on May 23 includes changes in taxation and tariff of considerable importance. The automobile industry has again come in for some heavy jolts which are regarded in trade circles as the straws which might well break the camel's back. The main features of the budget affecting the automotive and farm machinery industries are enumerated elsewhere on this page.

So far as the automobile industry is concerned the increase in the sales tax and the addition of the 5 and 10 per cent. excise could hardly have come at a more inconvenient time. Factories were just recovering from a slump in trade due to general trade depression and price reductions, and creeping up to capacity, and dealers were looking forward to a substantial business during 1922. Dealers are of the opinion that the result of the new taxation will be to slow up automobile sales to a certain extent.

Deputations representing the automotive industry waited on the Finance Minister at Ottawa and presented their brief protesting at the principle of the tax, the discrimination against motor cars and against various prices of cars. The deputation requested a clause being inserted protecting dealers against loss if the tax should be removed.

Sales Tax

One of the important changes in the budget which affects all sales is that of increasing the sales tax by 50 per cent. The former total sales tax on cars made in Canada was 3 per cent. and on imported cars 4 per cent. By the new schedule the tax is increased to 2¼ per cent. from 1½ per cent. on sales and deliveries by Canadian manufacturers, producers, wholesalers or jobbers, and to 3¼ per cent. from 2½ per cent. on the duty paid value of imported goods. In respect to direct sales by manufacturers to retailers for the purpose of resale, it is increased to 4½ per cent. from 3 per cent., and to 6 per cent. from 4 per cent., as stated, in the case of goods imported directly by retailers or consumers.

Excise Tax

The budget provision respecting automobiles reads: "Schedule 1—Automobiles adapted or adaptable for passenger use, valued at not more than \$1,200 each, 5 per cent.

"Automobiles adapted or adaptable for passenger use, valued at more than \$1,200 each, 10 per cent." This tax applies on automobiles manufactured in Canada as well as those imported into Canada after May 23.

The new taxes on Canadian-made cars are: sales tax 4½ per cent., plus 5 per cent. excise tax on cars valued at less than \$1,200, or 10 per cent. if the car is valued at more than \$1,200.

Imported cars: new sales tax 6 per cent., plus the 5 or 10 per cent. excise tax.

The excise tax applies on the manufacturer's price to the dealer in the case of cars made in Canada and not on the price to the consumer as was at first thought. In the case of imported cars the tax ap-

plies to the duty paid value; that is to say the U. S. manufacturers' wholesale price plus 35 per cent. general tariff, 5 per cent. U. S. war tax which is added to the dutiable value, and exchange.

The following table graphically illustrates how the new taxes affect imported cars—A car listed in the U.S. at \$1,000 is taken as a basis of computation and exchange figured at 1 per cent.

TAXATION CHANGES

Sales tax increased by 50 per cent.
Automobile excise 5 per cent. up to \$1,200; 10 per cent. above \$1,200.
Cheques, 2 cents up to \$50 and 2 cents on each additional \$50.
Insurance, 5 per cent. on premiums paid unlicensed companies.
Telegrams and cables increased from 1 cent to 5 cents.

TARIFF CHANGES

Mowing machines, harvesters, binders and reapers.—Reduced under the general tariff 2½ per cent.
Cultivators, harrows, horse rakes, seed drills, manure spreaders and weeder.—Reduced under the general tariff 2½ per cent.
Plows and threshing machines.—Reduced under the general tariff 2½ per cent.
Vegetable grading machines.—Reduced under the general tariff 5 per cent.
Nearly all other agricultural implements are reduced under the general tariff 5 per cent. There is a corresponding reduction on these articles under the British preferential tariff, but practically all are imported under the general tariff.
Tractors for farm purposes, valued at \$1,400 or less, and parts thereof, now free by Order-in-Council; it is proposed to make these articles free by act of Parliament.
Wrought iron tubing four inches and under in diameter is reduced 5 per cent. under both preferential and general tariffs. Wrought iron tubing over four inches and not over ten inches is reduced 5 per cent. under the preferential tariff.
Tools are reduced 5 per cent. under the preferential tariff.
Harness is reduced 2½ per cent. under the preferential tariff.
Farm wagons are reduced 5 per cent. under the preferential tariff and 2½ per cent. under the general tariff.
Milking machines are reduced 2½ per cent. under the preferential tariff and 5 per cent. under the general tariff.
Gasoline over .725 specific gravity and not exceeding .750 is reduced from 2½ cents per gallon to 1 cent under the general tariff.

EXEMPTIONS

The following articles are exempt from sales tax: Ores of metals of all kinds; fuel of all kinds; oil for illuminating or heating purposes; fibre for use only in manufacture of binder twine.

MARKING OF IMPORTS

The regulations dealing with the marking of goods at port of entry have been cancelled.

NOT APPLICABLE TO EXPORTS

Goods manufactured for export purposes are exempt from the excise taxes.

These regulations are in effect from the twenty-fourth day of May and apply from that date to all goods imported or taken out of warehouse for consumption and to apply to goods previously imported for which no entry for consumption was made before that date.

A ruling has been given by the Government that all bona fide orders taken for automobiles previous to May twenty-fourth will be protected even though delivery has not been effected.

United States manufacturer's wholesale price..	\$1,000.00
United States war tax 5%.....	50.00
	<hr/>
	\$1,050.00
Exchange at 1%	11.00
	<hr/>
	\$1,061.00
Duty at 35% on \$1,061.00.....	\$371.35
	<hr/>
	\$1,061.00
Sales tax at 6% on.....	371.35
	<hr/>
	\$1,432.35
Excise tax at 10% on.....	143.23
	<hr/>
	\$1,432.35
Total added charges	\$600.52

The total duty and taxes add 60.05 per cent. to the U. S. wholesale price. If the exchange is at 2 per cent. the total amount added is 60.73 per cent., and if at 3 per cent. the increase would be 61.29 per cent.

Another feature of importance in the budget is the cheque tax. The tax on cheques heretofore was two cents on each cheque; this has been increased to two cents on every fifty dollars. On express money

orders the tax will also be two cents on every fifty dollars, instead of two cents for each order.

Much annoyance and trouble has been caused to business men by the regulations relating to valuation and marking of goods at port of entry and to imports from countries where currency is depreciated. These are all wiped out.

Farm Machinery

The budget gives roughly a 2½ per cent. reduction on the general tariff for agricultural implements, though such implements as grading machines and milking machines have drawn a reduction of 5 per cent. A Canadian farmer who buys an American-made plow worth \$100 will pay \$2.50 less on customs but on the other hand since the sales tax has been increased by 50 per cent. he will have to pay two dollars of that back in sales tax. The sales tax on imported implements from the U. S. has been increased from 4 per cent. to 6 per cent. The increasing of the British preference by from 2½ per cent. to 5 per cent. will not affect business to any extent, is the opinion of some of the implement man-

ufacturers, due to the fact that practically all farm machinery is imported from the United States.

The budget is being received with mixed feelings among the parliamentarians. The great majority, however, of the Liberal party profess complete satisfaction with its terms. The Liberals admit that the tariff reductions do not go very far towards fulfilment of the fiscal pledges of their platform of 1919.

The low tariff wing of the Liberals find comfort in the fact that a move has been made in the direction of downward revision and express the conviction that the present step is merely a first instalment of further changes at succeeding budgets.

The protectionist wing of the Liberals are well content that the tariff reductions are not more serious.

The Progressives do not conceal their disappointment with the new budget. They are disposed to regard the tariff reductions as trivial. They aver that the reductions are largely offset by the increase in the sales tax.

What Dealers and Manufacturers Think of Budget

CANADIAN Motor and Tractor has received a number of interesting letters and opinions from dealers, and manufacturers in regard to the budget as it affects the automobile industry which are published herewith.

Mr. James, of the Automobile and Supply Co., a firm which handles medium and higher priced imported cars stated that since the new taxation came into effect sales have been practically held up. He is of the opinion that the industry has been asked to bear more than it can stand. He believes that what the Government hopes to gain by the new taxes will be more than offset by a reduction in sales.

Mr. MacWilliams of Hislop Bros., Cadillac distributors, said that the principle of discrimination against the higher priced cars was unfair. "If an excise tax is required to raise revenue," stated Mr. MacWilliams, "it should have been applied at the same ratio on all cars."

Cars Will Cost More

"It is extremely hard at this time to forecast the results of the action of our Government in imposing upon the motor industry the further burden of an increased sales tax, and a new excise tax," stated W. M. Gray, vice-president of Gray-Dort Motors, in a letter to Canadian Motor and Tractor:

"Of course the interests least affected should be those bearing a smaller taxation, under which class come practically all of our cars except the higher priced closed models.

"The writer is fully conversant with the fact that our government must have funds to repay the enormous debt that has been incurred. At the same time, to be made the target of the brunt or burden of taxation, in our particular industry, seems to be rather hard to understand. The government persists, and has always looked upon automobiles as a luxury, or at any rate, in many instances, they have hid behind this expression, knowing full well that the absolute necessity of motor cars in the present day commercial life, demands that they be bought at almost any price.

"Unquestionably, people dislike paying taxes, and it is bound to have some slight reaction on the industry, what the result of that action at the present time, will be, is beyond the power of human ability to forecast."

G. W. McLaughlin, of the McLaughlin Motor Car Co., Oshawa, states:

"Regarding the effect which the new legislation will have upon the automobile industry and dealers in general throughout Canada, would say that we think it will be very damaging all along the line of the trade, and also to every person who has any financial interest in garages in the country.

Automobile Not a Luxury

"There is no doubt," he adds, "it will affect the price to the consumer. It will simply have to be added to the cost of the car. There is no other way in which it can be taken care of. The automobile industry has, in common with the others, just gone through a very severe period of depression, in which millions of dollars have been lost, and now that it has been one of the leaders in getting the country back to a normal basis, supplying a great deal of

work not only to factories and garages but to subsidiary companies, it is particularly unfortunate the government has singled this industry out for such special, drastic taxation. We are all agreed that the revenue must be raised, but this looks to us like class legislation in a very severe form. The automobile is no longer a luxury and should not be so classified by our politicians. We cannot believe that the government fully realizes the seriousness of the step they propose to take, as it will affect transportation and a hundred and one subsidiary companies as well as the ultimate consumer.

"In respect to the increase in the sales tax," con-

Implement Men Say Sales Tax Offsets the Tariff Reductions

THE OPINION general among farm machinery manufacturers and distributors is that the tariff changes will have little effect in reducing the price of implements to the farmer. Writing in this connection to Canadian Motor and Tractor, A. G. Umbarger, manager of the John Deere Mfg. Co., of Canada, says:

"In general, it may be said that no farm implements of consequence are imported into Canada from anywhere except the United States. The new budget provides a 2½% reduction of duty rates on implements from the United States.

"This reduction of 2½% on duty," adds Mr. Umbarger, "is overbalanced by the increase in the importation tax, and likewise the increase in the sale tax in Canada, so that as far as we can see there is no justification for any changes in prices on farm implements on account of the budget.

"To the extent that any farmers have been deferring the purchase of farm implements with the hope that the new Government would eliminate the duty on implements altogether, and thus have a tendency to reduce prices of Canadian manufacturers, now that the budget is out and this relief has not been afforded him, he may, and should come into the market and purchase his requirements of implements so that he can carry on his farming operations as efficiently, and economically as possible.

"In general, as we see it, the entire matter is on very little different basis than heretofore, and to this extent we are a little bit better off than some industries where with no tariff reductions, but with an increased sale tax, a slight additional burden is added.

"We believe the farm implement industry is due for a very considerable revival of trade. The farmer has not been buying his natural requirements, and sooner or later must make replacements. The one big item which for over a year has retarded the implement business has been the matter of high freight rates, not only on raw materials to the factory and the finished articles from the factory to farm, but more particularly freight on the farmer's produce from the farm to market. This expressed in terms of bushels required in the purchase of any specified item has resulted in requiring too many bushels of

tinues Mr. McLaughlin, "we have no objection to offer. We think that is a sound principle and spreads the load evenly upon all classes of citizens, and it would continue to spread the load evenly if the special excise were entirely removed, as the man who bought the highest priced car, would through the sales tax, pay more revenue for it. After having had so many bumps in the past, we think this industry ought to be left to work out its own salvation without being harassed every time the budget is brought down and thus introducing uncertainty and disturbance to the whole trade as well as to the automobile industry."

produce to pay for a given item to the extent that the farmer has been prohibited from buying."

Milking Machines From Britain To Cost More

From the standpoint of a firm importing milking machines from Britain, W. J. Ellis, manager of R. A. Lister and Co of Canada, Toronto, has this to say:

"At first glance, it seems to us as though these charges would just about leave things as they were, in fact as far as we can see some of the goods which we are importing will cost us even more than they did before. For example, the customs duty on British-made milking machines is reduced by only 2½%, whilst the duty on American-made milking machines is reduced by 5%. Therefore, the preference on the British-made machines is actually reduced by 2½%. Moreover, as the import tax is increased by 1¼% and the sales tax is increased likewise from 1¼% to 2¼%, the net result is increased costs instead of lessened costs. Cream separators will also cost more, also gasoline engines and tractors. Of course, our comment might be subject to revision when we have seen the official text, but this is what it looks like at present."

Regrets Tractors Are Free

"The only result, as far as I can see at present," states Arthur W. White, of the George White & Sons Co., London, Ont., "is that it gives the U. S. manufacturers a little more advantage. We still have to pay from 25% to 40% on a quantity of material and a number of articles that we have to import from the U. S. that enter into the construction of the machines we manufacture.

"The competition was extremely keen before. Most of the U. S. manufacturers carried over a large stock of machinery last year, and it seems to be their policy to reduce their inventory at any price. This makes competition all the more keen.

"In the matter of gas tractors," continues Mr. White, "we were hoping that the government, in their wisdom, would place these on a par with other farm machinery, but they still continue to come in free of duty. When the order-in-council taking the duty off gas tractors, was passed as a war measure, the Government gave the manufacturers positive as-

(Continued on page 6)

Survey Shows Marked Activity in Car Buying. Dealers From All Quarters Report
Increases Over Last Year. One of the Surprises of the Year is an
Unprecedented Demand for Closed Models

"There is a certain amount of sales resistance by people waiting to ascertain what crop conditions are liable to be like next month. If we get the required moisture in June, and prospects for a crop are good," concludes Mr. McCullough, "we are looking for a very good midsummer and fall business."

Tractor Prospects in the Industrial Field

The Use of Tractors for Industrial and Commercial Purposes Has Increased Rapidly During the Past Year or Two. In Many of Our Large Cities Their Use for Contracting Work Has Constituted Quite Profitable Business for Dealers, Yet the Possibilities Have Scarcely Been Touched

WHEN AUTOMOBILES were first manufactured, no one dreamed of the future possibilities of the industry. Practically everybody considered the automobile the rich man's plaything and something which could never be other than an expensive luxury.

Twenty years of development and use have shown how far from the truth these early opinions were. Automobiles and their big brothers, the motor trucks, are to-day considered absolute necessities for thousands of different kinds of work which no one dreamed of when the first machines were invented.

A good deal the same sort of evolution is destined to occur with the farm tractor. Men are just beginning to realize its possibilities and every day one hears of some new use for these mechanical power plants. Many people have had the idea that since these tractors were developed primarily for use on farms that they were limited to this field. This is just as far from being true as that the automobile is limited to pleasure purposes. Tractors are now being used by many commercial concerns for work which neither the tractor manufacturer nor dealer had in mind a few years ago and there are still many lines of work for which tractors can be used which have not yet been developed.

Farmer is Not Only Prospect

Some dealers are beginning to realize the possibilities of selling tractors for commercial purposes, and where they have made a real bid for this business results have in nearly every case been highly satisfactory. So rapidly has the commercial use of tractors developed that to-day many tractor dealers located in large cities are selling more tractors than dealers located in agricultural sections, and interviews with some of these city tractor dealers bring to light the fact that they are extremely optimistic over their future prospects.

The dealer who has been devoting his tractor selling efforts exclusively to farmers will find it well worth while going after the commercial tractor business in his territory, for there is some such business in nearly every community.

One of the most important uses for the tractor, next to farm work, is in grading and maintaining roads and streets. For this work the tractor is far more satisfactory and economical than horses and there is a very large field to be developed along this line. Every incorporated town or village is a prospect for one or more tractors for this work and the various country road commissioners are also prospects.

The tractor is no experiment for road work—it has proven its right to this field in thousands of cases.

Contractors Are Live Prospects

Another important field for tractors and one which is just being developed is in contracting work such as excavating, grading, etc. Contractors who handle these jobs have in the past maintained a stable of horses to pull the plows, scrapers and other tools or else hired them when needed. In the former case it meant having a large number of horses standing idle a good part of the time, with the expense for feed and maintenance going on. In the latter case the cost was usually exorbitant. Small tractors have proved much more efficient, economical and generally satisfactory than horses. They have several times as much power as a team of horses, occupy less room, and are easier handled, hence they have thoroughly sold themselves to contractors wherever they have been given a trial, but there are thousands of contractors who have not yet had their use brought to their attention and therefore this field offers tremendous possibilities to the tractor dealers who go after it.

Tractor As Switching Engine

A great many tractors have been sold during the past few years to manufacturing concerns which handle a large amount of bulk material and have a great many cars to move on their railroad switches.

By ARNOLD P. YERKES

A good tractor makes a very satisfactory and economical substitute for a switching engine, being far superior to the use of horses or hand devices for moving cars. There are often many other jobs of heavy hauling in the yards of manufacturing plants where tractors are extremely useful. In this work, as in many other commercial lines, the need for such power will be intermittent, and where the tractor is employed it represents a minimum expense when not in use, while with horses the expense is practically as great when idle as when working.

Quarries, lumber companies, well drilling outfit, brickyards, lime kilns and numerous other commercial establishments also offer excellent prospects for tractor business. In fact there are very few lines of industry in which the tractor has not been used with satisfaction in some capacity. The live tractor dealer will not overlook these possibilities in his territory. He may rest assured that sooner or later such concerns will use the tractor, and if he does not bring the matter to the attention of the proper officials and get the business, someone else will.

Get Familiar With Industrial Requirements

It goes without saying that in order to place tractors in most of the commercial jobs referred to, the dealer must be entirely familiar with the conditions which are to be met and the equipment which will be used with the tractor. Ignorance on these points may easily spoil a sale. There is no need for such ignorance, however, as practically all tractor manufacturers have in their offices full information regarding the use of their machines for the various kinds of work, or else can obtain it upon request. Where a dealer has commercial prospects for tractors therefore, he should assure himself that he is fully equipped to properly present the tractor before trying to make the sale, and if he lacks the necessary information, he should take the matter up with the manufacturer and obtain the desired information.

Incidentally, the sale of special equipment for use with tractors in commercial work, particularly in the contracting business, affords an excellent side line. Some tractor dealers in cities report that the returns from such equipment business are practically as great as from the sale of tractors. In many cases special wheels, probably with rubber treads, will be necessary, and the dealer should be informed regarding the different types which he can obtain for his tractor and the cost of same.

Manufacturer's Sales Helps

Some manufacturers have prepared special literature dealing with the use of their tractors for commercial purposes, and such material would obviously be of immense value in presenting the tractor to commercial prospects. After the ice has once been broken the work will be easier, and if the machines prove

satisfactory in the first instance they go far towards making other sales. No better sales argument can be advanced than the service being rendered by the machines in the hands of local industrial concerns.

Incidentally, the work for which tractors are used in industrial plants is usually less difficult than that required on farms. It is not usually so varied nor done under such trying conditions of dust, heavy continuous load, etc., which much farm work involves. If the machine will do the desired jobs, therefore, it is likely that it will give less trouble in operation and require a smaller amount of repairs than would be the case when used on the average farm, which makes another good reason why the commercial field is well worth cultivating.

Implement Men Say Sales Tax Offsets Tariff Reduction

(Continued from page 4)

insurance that it would be rescinded at the end of the war. The industry was just starting in Canada when the duty was removed. Two or three companies were building and a number were assembling and starting to build gas tractors. Had it not been found necessary to take the duty off tractors as a war measure, or even if the order-in-council had been rescinded after the war, as promised by the government, millions of dollars worth of gas tractors would now be made in Canada, giving employment to thousands of men. The fact that Canadian manufacturers have been purchasing tractors in the U. S. and utilizing their organization and sales force to dispose of them in Canada, proves conclusively that the Canadian manufacturer cannot compete with the large, specialized industries in the United States, particularly when the Canadian manufacturer has to pay duty on a large percentage of his raw material.

"The farm machinery industry should flourish in Canada. We have a good home market, and the possibilities of an export market are enormous, but," warns Mr. White, "unless the manufacturers can have some confidence in a stabilization of the tariff, the industry, instead of advancing as it should, will retrograde, and manufacturers, if they continue in business, will increase their purchases of the manufactured goods in the United States, using their organizations to dispose of them in Canada, or move to the United States to build the machinery, and ship into Canada."

"We are pleased to say that the tariff changes do not affect cream separators," states the sales manager of the Renfrew Machinery Co.

"The increase in the sales tax will of course create a sales resistance, but as the public have become accustomed to this tax we do not feel that the obstacle created will be unsurmountable."



An important field for tractors, and one which is just being developed, is in contracting work such as road construction, excavating, etc. This tractor is being used to operate a stone crusher.

Keeping Track of \$50,000 Auto Parts Stock

This Stockroom Employs Many Unusual Features Which Are Well Worth Studying by Other Dealers. All Parts Are Stored in Specially Constructed Racks.

Time and Space Saving Ideas Everywhere. Unique Card System Used as a Guide to Buying

IT HAS been said that the efficiency of a stockroom can be judged by its ability to fill orders, and a good performance would mean that a stockroom was able to fill from 95 to 98 per cent. of its orders on demand. Such a stockroom is being operated by W. C. Warburton Co. of Toronto, automobile and automotive equipment dealers.

The system of storing, arranging and keeping track of parts used by this firm is well worth studying by other dealers.

Turns Stock Four Times

As the Warburton Co. turn their general stock four times in a year (some parts even turn over as often as eight times) the arranging of the parts to facilitate handling is an important factor. Accessibility is the keynote of the entire department. Parts can be located on the instant. Everything is arranged to conform to a definite plan and nothing is out of its place.

Everything pertaining to stock is segregated and under the control of the manager of the stock room, Mr. Fisher. No one is allowed in the department but those employed there and parts can only be drawn by signed requisitions.

No Dead Stock Carried

Every part stored in the Warburton stockroom is a "moving" part: that is, a part for which there is a constant demand. No dead stock is carried. Much care is exercised in selecting lines for stock. The sales records are examined closely to determine the parts that are selling.

The stock is renewed every three months. In his office the manager of the stockroom has a card system which keeps track of all purchases from the jobber or manufacturer. These cards have printed

Lines for stock are selected only after the most careful investigation. Goods are bought always from the reliable houses, and are chosen for their serviceability. Parts are sometimes bought on a yearly contract basis, when by doing so a better price is obtained. Under this system goods are taken in three-monthly lots.

There are over 300 of them arranged in square formation, and built row upon row like a checker board. At the ends the series is braced and held together with $\frac{1}{8}$ " x 1" angle iron.

This system does away with the usual wall rack arrangement of bins and eliminates climbing for parts. As the boxes are not nailed down it is a



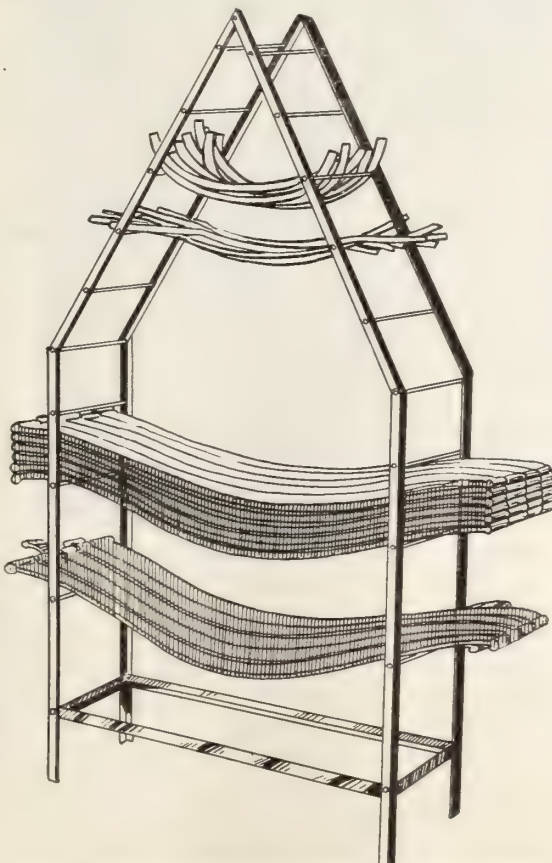
Small motor parts are kept in these boxes which are arranged in square formation and built row upon row like a checker board. The boxes are not nailed down, but are braced at the ends with angle iron.

If a new piece of equipment is put on the market, a sample of it is obtained and its performance is watched. If it proves satisfactory and there is a likelihood of its being in demand it is allowed to go into the stock.

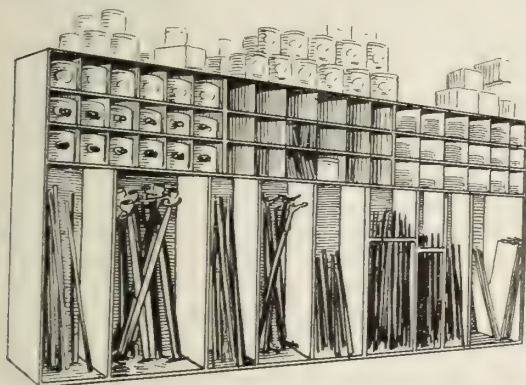
The Warburton Co. carry a stock of about \$50,000 worth, sixty per cent. of which is sold wholesale to small garages over a large part of Ontario.

How Parts Are Stored

A unique system of storing the parts is in use. The stockroom is divided into two sections. In one section, 30x25, the small motor parts that are continually in demand are kept in a series of boxes. These boxes are 9" x 12" x 15" and made of $\frac{5}{8}$ pine.



Front and rear springs are pyramided on racks designed to accommodate the various sizes and shapes



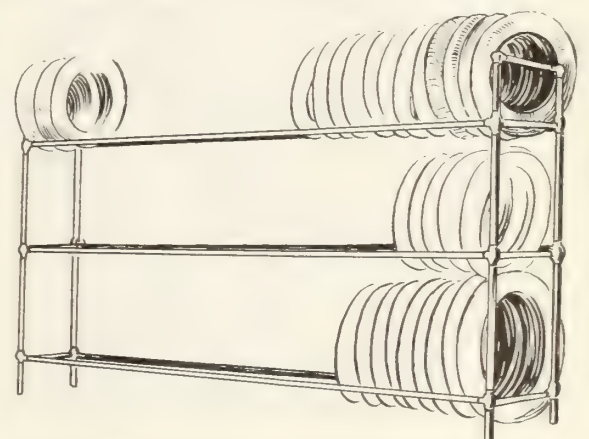
A handy method used for storing such parts as radius rods, d.s. tubing drive shafts, front axles, etc. The small bins at the top are for storing piston rings.

on them the name of the article, quantity ordered, size, list price, net price, from whom purchased and the date. There is also a space for remarks. The manager has his finger on the pulse of his stock business at all times. If a card shows that ten of a certain article was purchased three months previously and the sales records reveal that sales have been normal then ten of that same part will be re-ordered, and if the service obtained from the jobber was satisfactory the order will go to the same house. That is just about as closely as this stock is watched. The actual demand is known on every article.

Care In Buying

The Warburton Co. have long recognized that right buying is fundamental to success in merchandising. Mr. Fisher, the stockroom manager, is given a free hand and it is up to him to bring in the profits. The card system designed by him gives a complete record of all purchases and is his guide in buying. A card is made out bearing the name of each jobber with whom they do business. The card file is divided up into sections—accessories, tool, equipment, hardware, etc. This system almost entirely eliminates referring to jobbers' catalogs when purchasing the ordinary run of equipment.

simple matter to remove one should the necessity arise. Each box is labeled with number, name and price of part. The numbers follow the Ford catalogue closely, starting with 2503E axle housing bolts,



Tires, wheels, fenders, etc., are stored on separate racks made of gas piping with rail fittings. A rack for pistons fitted with pine shelves and having eight sections, is also made of gas tubing.

and including practically every part up to battery clamps which are numbered 5152.

A neat and handy method of storing such parts as radius rods, driveshaft tubing, drive shafts, front axles, steering gear connecting rods, brake pull-rods, etc., is in use. These are set upright in a rack, ten foot wide by five foot high. This rack is divided up into sections, one section to each of the different parts. The sections are labeled with name of part, number, etc.

On top of this section is built a cabinet for holding piston rings. This is divided into 52 compartments, each capable of holding three dozen rings. Eight different makes of rings are kept. The cabinet has three rows of compartments. The rings are stored vertically. One style of ring will occupy one or two vertical rows of three compartments each. This cabinet is within easy reach, being just a little over five feet from the floor. The different sizes are indicated by a card and any standard or over-size of any make in stock can be located on the instant.

Springs are kept on specially constructed frames made of $1\frac{1}{4}$ x $\frac{3}{16}$ angle iron. The illustration on

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Car Sales

NOT for many months has there been so much activity in motor car buying as in the past few weeks. Dealers selling every make of car report healthy sales and in some cases the only drawback experienced has been in deliveries.

While there is nothing in the shape of a boom there is sufficient encouragement in the situation to warrant the opinion expressed by manufacturers and dealers that the industry is out of the woods and about to experience a period of prosperity. The new taxation announced in the budget may put the brake on sales for a little time but it is hardly likely this will affect the situation seriously for long.

The important point in the situation is that the dealers have got back to selling. They are studying the fundamentals of merchandising and are beginning to realize the importance of proper service, up-to-date sales methods and intelligent advertising.

A Truck Selling Campaign

ON ANOTHER page of this issue appears an article on selling motor trucks which should be studied carefully. The writer points out the advisability of preparing a selling campaign to cover several months and shows where the truck prospects are.

There is one best time to sell every prospect. If the canvass is made at the proper moment there is a greater likelihood of making a sale, and avoiding much waste effort.

The idea of seasonable selling is not new but it is often overlooked. If a fruit grower is approached just before he is about to harvest his crop the vision of a speedy means of transporting his perishable goods to his market will make a big appeal to him.

Concentrate your efforts on live prospects, study their transportation problems, and time your selling effort to coincide with the period of their greatest need.

Rushing Tractor Sales

IT SEEMS to us as though the most important action necessary in selling tractors is for the retail dealer to first decide that he is going to be the tractor representative for his section, says J. D. White, sales manager of Emerson-Brantingham Implement Co.

The human individual is usually able to do anything within reason that he firmly makes up his mind he will do. Consequently, we consider this the most important action conducive to the sale of tractors.

After the dealer has decided that he is going to be the tractor representative of that territory, he should as nearly as possible get at the possibilities of his territory, make a careful analysis of his customers, or as the sales specialist tells us, "arrive at the potential sale in his territory" and then endeavor to realize on those possibilities.

For instance, suppose the townships comprising his territory are six miles square, and suppose there should be an average of 144 farms of 160 acres each in each township. If his territory covers three town-

ships outside of the city or town in which he operates, that would make 432 farms on which at least one tractor could be profitably used.

Then the question should be—should he get one-half or one-quarter, or just what per cent. of the total business is his? If he decides one-half, then he should not be satisfied until he has 200 tractors working in his territory.

It is said the safety razor merchant can afford to sell his razor without profit because of the subsequent profit he makes in the sale of the blades. The tractor dealer should realize that every tractor he sells is a stimulant for the sale of all kinds of tillage tools—harvesting machines and power driven machines, in fact, all kinds of labor saving machines for the farm.

Furthermore, the sale of the tractor properly handled establishes his standing in the community as a real dealer in power farm equipment.

From the standpoint of advertising value, the pushing of tractor sales is probably worth all its costs. Therefore, it would seem that the retailer who expects to make a success in the sale of farm equipment should make the tractor a leader and give it much the same position, care and attention that does the stock farmer the head of his herd.

Summer Accessories

THE TOURIST season is about to open up and to the wide awake equipment dealer it means a season of big sales. Every method of appeal should be adopted. Special window displays, seasonable newspaper advertising and personal solicitations at the pump.

The dealer should endeavor not only to sell the equipment actually needed at the moment but should show his customers the advisability of carrying extra or emergency equipment. Some dealers put out special signs at the main approach of the town drawing the tourists' attention to the fact that they can supply such things as luggage carriers, camping kits, vacuum bottles, extra tire carriers, bumpers, etc., and direct a lot of this business their way.

The garageman who makes it his business to know the condition of every road leading from his town or city, all the detours, traps, etc., and who passes this information on to his transient customers will earn their gratitude and prompt them to show their appreciation by spreading the good word among others of their kind.

Why Not Radio Sets?

THE RAPID development of wireless telephony opens up a new field of merchandising. Already dealers of various kinds are taking to this new line. There is no reason why the automotive dealer should refrain from adding radio sets to his stock of equipment. In point of fact there are many reasons why he should sell it. He is a dealer who does not require to go out to look for customers. They come to his door. The car owner has to come to the garage for repairs, storage, gasoline and oil many times a day.

You have learned to take advantage of this to sell

him automotive equipment, why not make him buy his radio receiving set from you also? Then as the fall season is the time to interest your customers in this line, it fits in nicely to your business as sales in automotive equipment usually begin to fall off a little at this time. There is every prospect too that the near future will see some form of radio attachment adapted to automobiles. If you were already handling this line you would be all set for the new "accessory."

Automotive equipment jobbers are now distributing these sets and some car dealers have started in to sell them. It is worth consideration.

A Modern Fable

A NATURALIST divided an aquarium with a clear glass partition. He put a lusty bass in one section and minnows in the other. The bass struck every time a minnow approached the glass partition. After three days of fruitless lunging, which netted him only bruises, he ceased his efforts and subsisted on the food that was dropped in.

Then the naturalist removed the glass partition. The minnows swam all around the bass, but he did not strike at a single one. He had been thoroughly sold on the idea that business was bad.

Moral: Take another shot at the glass partition, you'll find it isn't there.

Keeping Track of \$50,000 Auto Parts Stock

(Continued from Page 7)

this page describes this very clearly. These frames are in two sizes to fit both front and rear springs.

Fenders, wheels, and pistons are stored on separate racks all made of ¼ gas piping with rail fittings. About 150 fenders, 110 wheels, both artillery and demountable, and about 900 pistons form the normal stock of these articles. The piston rack is fitted with pine shelves and is in eight sections each capable of holding 110 pistons. A similar rack is provided for tires. These frames are arranged in orderly formation with ample space for working around.

A large rack with pine shelving is also provided for overflow stock of small parts. The overflow stock of the larger parts is allowed to remain in packing cases until required for the general stock. These cases are arranged around the walls out of the way.

Radiators are stored on a frame capable of holding 40 at a time. Wrenches and other small tools are kept on display frames.

The Warburton Co. carry a large assortment of hardware, such as carriage and machine bolts, stove bolts, rivets, woodscrews, screwdrivers, emery cloth, etc. All this material is stored away in specially constructed cabinets fitted with drawers.

System and Cleanliness

As the reader will have gathered by this time nothing is permitted to litter the floor of this stockroom. If it is possible to make a rack for an article it is made. Orderliness and cleanliness are the outstanding features and when we add to these good management we have a department of marked efficiency.

Everything drawn from the stockroom is covered by a requisition sales or charge slip. These are made out in duplicate. Requisitions, sales and charge slips go to the main office each night and are entered up against a job order, charge account, or posted to sales as the case may be.

All outside repairs on small parts go at once to the stockroom manager who makes out a regular order form in triplicate just as for a large repair job. The work with instructions is then turned over to the repair shop foreman. After the job is finished it returns to the stockroom where it is crated ready for shipment. The original order form, which is a white card, is the invoice and goes to the customer with the job which is expressed C.O.D. The yellow card goes to the main office where it is filed after the job has been written up as paid.

In handling orders from outside garages every effort is made to ship goods the same day the order is received. A service car specially fitted up for the stockroom is used to carry tires, gasoline, oil, parts, etc., to cars that have broken down on the roads, and for rushing goods to the nearest depot to out of town points.

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Sold Fifteen Used Cars in Ten Days

Frank McLachlin, Studebaker Dealer, London, Ont., Doesn't Find Much Difficulty in Disposing of His Used Cars. He Has a Definite Plan Worked Out Which He Rigidly Adheres to. His Slogan in His Advertising is "The Envelope Tells the Story."

THREE absolutely hard and fast rules, from which not even the slightest deviation is allowed, form the basis upon which Frank McLachlin, Studebaker dealer at 86 King St., London, Ont., handles all used cars. They are as follows:

- (1) Name a price and stick to it.
- (2) Treat all prospects alike.
- (3) Live up to every word of your guarantee, written or advertised.

"I regard every one of these rules as most important," said Mr. McLachlin to Canadian Motor and Tractor Trade Journal. "Each is just as important as the other and I insist on them being lived up to. Frequently we could make a sale, and a good one too, by taking off \$15 but we do not do it. We set what we consider is our best price and then stand or fall by it. We show absolutely no preference to prospects or customers. Our aim is to give everyone the fairest treatment we know how."

The Envelope Tells the Truth

In connection with the last point about living up to every word of the guarantee Mr. McLachlin has worked out an envelope plan. Each used car has attached to it an envelope giving the details about its condition, equipment, price and other details. In his used car advertising he features the slogan "The Envelope Tells the Truth."

"We mean exactly what we say," said Mr. McLachlin. "We state everything about the car as we find it. If there are faults we do not try to hide them. We want our customers to feel that they can trust us absolutely and I can safely say that the business we have built up on this basis is not only proving permanent but is one of the best advertisements we have. I think it is something to be proud of when a man you never saw or heard of before walks into your show room and buys a car on your word, and pays for it without us even having to start the motor. This has happened not once but several times. In one or two instances these customers were sent to us by parties to whom we had previously sold cars and who told them of our methods of treating everyone fairly."

Real Service

"Part of our plan which we do not feature especially in our advertising of used cars, but which is proving a winner and a builder of business and good will is to take care of all repairs for thirty days on used cars we send out. We go over cars thoroughly before we offer them for sale and put them in good condition, but even then there are things that will sometimes happen after a car has been driven. In case of any troubles of this kind we make good any repairs without question. It costs us a little money sometimes but it is money well spent and some of the very best advertising we are getting is coming from parties who appreciate our service in this respect. It is a common thing for us to get reports regarding prospects for both new and used cars from as many as fifteen former buyers of our machines. If these people were not satisfied with the way we had used them they would never stop talking about it. They never stop talking about us as it is but they give us the right kind of advertising instead of the wrong kind and this is a point which all dealers do not appreciate. I think there is no better advertising for any business man than a satisfied customer. People who buy things, motor cars or anything else are continually talking about them to others and if you can keep them talking favorably about you and your business methods it has a real cash value."

"Sold" on Advertising

Mr. McLachlin stated that he is thoroughly "sold" on the value of advertising. He is a big and consistent user of space in the daily newspapers and in addition has road signs posted at about twenty of the most advantageous spots on the main roads leading into London.

Advertising," said Mr. McLachlin, "works twenty-four hours a day and 365 days a year. It never stops. I depend upon it to reach prospects all over this district and it always produces results."

By C. E. PARSONS

The results of course naturally vary, depending upon general conditions and what we are offering. But we always get results and that is the main thing. In our recent three day sale we closed out all the used cars we had to offer, fifteen, in ten days. For the first three or four days there was nothing much to show for our advertising but after that the cars moved steadily. One has to allow for time not only

HOW McLACHLIN DOES IT

"We tell the truth about our cars," says McLachlin. "We state everything about the car as we find it. We want our customers to feel that they can trust us absolutely and I can safely say we have built up a good permanent business on this basis. Part of our plan which is proving a winner is to take care of all repairs for thirty days on used cars we send out."

for the message reaching the parties interested but also for them to think over the proposition and come and see about it. Our advertising frequently brings in parties from points sixty miles away.

An Important Point

"There is one very important thing about advertising and that is offer the right things at the right time. There are times when it would not be wise to offer certain cars, for obvious reasons. We study this side of the question carefully and try to gauge



FRANK McLACHLIN
Studebaker Dealer, London, Ont.

our advertising so as to strike at the psychological moment. With all modesty I think I can say we have been successful and that the results from our advertising have been very, very satisfactory.

"There is one curious thing that has often struck me about advertising and that is the way it sticks in people's minds. I have had people come in and talk to me about things that we advertised two years after the advertisement appeared. They remembered perfectly what was offered and the firm name. We frequently find people asking us about things they had seen in our advertising two or three months be-

fore, and inquiring if we have a car like this or that, which they read about."

Follow Up List

In addition to the prospects obtained from advertising Mr. McLachlin keeps a follow-up list. On this are hundreds of names of car owners and these are systematically kept in touch with.

"Once a man has owned a car," said Mr. McLachlin, "he is never going to be without one. He may start with a small one. Then in a very short time he wants something better. The tendency of the majority of car owners is constantly to get a car that will be a little better than the one they are now driving. This offers a big field for the dealer and we are constantly developing business by our system of keeping in touch with the car owners of the district."

Fair Treatment

In his repair department Mr. McLachlin follows out rigidly the same rules regarding fair treatment that apply in the other branches of the business.

"We want every customer satisfied," he stated. "If a man comes to have his car repaired and a new part is required we put the old part in his car so that he will know absolutely that he has a new one. Car owners frequently ask what is this or that piece which they find in their car and when told say to take it out as they do not want it. We tell them we do not want it either and ask them to take it."

Mr. McLachlin sees a tremendous future ahead of the auto business. The coming years he says, mean much to the men in the trade and it is for this reason he points out that he is being so absolutely careful at the present time to build his business on a permanent foundation.

"I think that by working out the policies we are now practising," he said, "that we are building for an ever widening circle of business. We are proving it every day and the business will be like a snowball getting bigger and bigger all the time. People are 'sold' on automobiles. They are realizing that they cannot afford to be without them and there is going to be an enormous demand. Every car owner is a booster and the future will see practically everyone in the country with a car of some kind."

Scores Price Cutting

Mr. McLachlin scored severely the price cutting done by dealers in some centres. "Price cutting is bad business at any time," he said, "and will get nobody anywhere. In London the men in the trade co-operate pretty well and that is the way it should be. There is plenty of business for everyone and there is no excuse for introducing price cutting."

"Business is going to be good. There is no doubt in my mind about that at all. The new tariff while it adds to the cost of cars will not hurt trade. A man who wants a car wants it and an extra \$50 or \$100 is not going to stop him buying. People know the value of cars and that there is no better investment and they are going to buy more than ever."

SEIBERLING LOWERS PRICES ON TIRES

AKRON.—Frank A. Seiberling announces that a straight 12½ per cent. price cut will be made on all sizes of Seiberling and Portage straight side cord tires, effective June 1. This will bring the price of the 30 x 3½ Seiberling clincher down to \$10. Another feature of the price reduction is that the Seiberling company will absorb the 5 per cent. Government excise tax which the dealer heretofore has collected from the consumer in addition to the regular retail price.

It is stated that Seiberling has put into effect in his two plants advanced methods of manufacture which have brought production cost down to a minimum. It is claimed that the New Castle plant is one of the most efficient manufacturing units in the world. Another factor in the price reduction is Seiberling's view of the future cotton and rubber markets. Seiberling believes that the day of the cord tire has arrived and he has confined the Seiberling brand to that type.

Budget Your Truck Sales Possibilities

There Is a Psychological Moment to Approach Every Truck Prospect and it is the Time When Conditions in His Business Are Brightest. This Article Gives Suggestions for a Summer Campaign. The Suggestions Will Not Fit Every Case But They Can be Altered to Suit Local Circumstances

JUNE—the month of blooming fruit trees, blushing brides, and smiling nature. The world looks rosy and winter seems a long way off. But for the practical business man who realizes that dividends are paid, not by picking wild flowers, but by profitable sales, June is a month that represents wonderful possibilities secured through hard work and systematic canvassing of prospects.

While it is true strictly speaking that there is no exclusive motor truck season in the sense that we think of the sale of grain binders or other machinery used only during a short period each year, yet the months of May, June, July, August and September constitute a time when motor trucks can be sold easier by the application of intelligent effort than during the more frigid months of winter.

Large companies who have set aside certain appropriations for the purchase of equipment usually have not spent all of it by the middle of summer, therefore are approachable on this subject without being able to retreat behind the argument that they have no available funds. Early summer is a better time for sales from a psychological standpoint. The warm, balmy weather cheers the mind in spite of everything. Business usually is better and when money is coming in there is more of a willingness to buy needed equipment.

A close analysis of the market is quite necessary if there is to be no lost motion and no time wasted on industries that are not experiencing their busy season. Each line of business has its peak load during the year just as an electric light and power company has its peak load every day. The times when these peaks occur vary with different businesses. It is your task to look the possibilities over, study the classified telephone directory, examine your prospect list once more, and as a result of your investigations you should evolve a list of potential buyers whose business is approaching the peak of the year.

Concentrate your fire on these. Apply the whole force of your selling efforts—advertising, correspondence, and personal solicitation to the firms who are approaching their busiest season for the year.

There is a psychological time to approach every business man on the purchase of expensive equipment, and it is the time when his business prospects appear brightest.

The following suggestions are made purely in the way of illustration. They will not fit all cases, but can be altered to suit local circumstances.

Red Hot June Proposals

During the month of June in some localities it would be in order to concentrate upon building contractors, plumbers, paper hangers, etc. Their busy season is just starting and if ever there was a time when a truck salesman could talk business to a contractor, it would be when he was attempting to keep three or four gangs of men busy in widely separated parts of the city. A busy contractor cannot afford to depend upon slow moving horses to haul workers, tools and material. A truck will soon pay for itself in the time it saves between jobs and the idle labor it prevents. Consider a brick house being put up, and without warning the cement runs short. Six or eight men are sitting around idle with their wages running on just the same. How quickly a good truck would come to the rescue and in a few minutes be down town and back with an emergency load that would keep the crew going until the cement man could bring up a larger supply.

This is no imaginary case. Such delays occur on every building that goes up and every moment lost cuts the contractor's profits. From a financial standpoint, it will pay the building contractor, plumber, or fixture man to have one or more trucks, yet he may not think of these things unless you tell him. A blank piece of paper, a good sharp lead pencil and a keen energetic salesman to push it often will bring forth convincing arguments that will win over an otherwise skeptical prospect,

By R. S. WILLIAMS

Then there are the vegetable and fruit men. June sees the beginning of their rush season. Garden truck and fruits are highly perishable and demand quick transportation. You have every argument in your favor in talking truck to any prospect engaged in this business. The vegetable and fruit grower needs a motor truck to get him into the market ahead of competition. The retailer needs a motor truck to transport his purchases quickly from the market to his store and again, quickly, to his customers. A

During your personal drives on various kinds of prospects, keep your advertising campaign in motion and directed toward the same class of trade.

If you are making a drive during July toward the ice dealers, the bottlers and the creameries, your advertising should carry copy designed to appeal to these trades.

Sales letters enclosing small advertising folders sent to prospects at frequent intervals serve to keep your proposition before the man until he is actually ready to sign up.

motor truck is a necessity for the wholesaler in the fruit and vegetable business also and usually it means a big, heavy-duty truck.

During the latter part of June and first of July the bottlers begin to speed up. As hot weather turns into hotter weather, the demand for cool, refreshing drinks mounts up until the bottling plants run night and day. It is a pretty good time to talk truck to the bottler when he is up to his neck in orders and scarcely knows how he is going to get them delivered.

Up in Winnipeg was a bottler who had purchased one truck just previous to the opening of the season. He was getting along very nicely until hot weather struck. Then he was swamped. Hearing of his plight, the same dealer who had sold him the first truck, sent another truck out to the bottling works with a driver, who was instructed to go to work hauling. The new truck and the driver hauled all day and in the evening the bottler dropped into the dealer's store with a cheque. Just a case where the dealer was an analyst of human nature and knew a psychological moment when he saw it coming down the street. He made a sale without saying a word.

Ice Dealers Can Be Sold In July

Along about the first of July or perhaps a little earlier the ice dealers will approach the peak of their season. If their equipment is worn and old, it will need replacing and that is your cue to step in and sell a truck of the correct capacity. Ice and ice cream are two products that above all others cannot be delayed when the hot sun beats down. Speedy transportation is vital. Call on the ice dealer, the ice cream manufacturer and the cold storage men

about July 1—not later. Size up the situation and see if you cannot show them how to speed up hauling with profit to themselves.

Candy factories run pretty much the same the year round, but any concern that manufactures a commodity sold at amusement parks or that is exclusively a summer confection will be busiest in the summer. Don't let any prospect of this nature get away.

If there are wholesale bakers in your city, remember that summer is the busy time in that industry. No woman likes to stand over a hot stove at any time, and when the thermometer hovers around ninety in the shade many of them won't do it at all. Result—the baker doubles his business and his product must be hauled quickly and cleanly. The baker who uses a motor truck for delivery gets a name for cleanliness, while the horse and wagon baker cannot make any such claim.

While the aforementioned businesses usually approach the peak of their trade during June and July, it must not be lost sight of that unsold prospects must be followed closely until sold, no matter what the month. The scheme of "budgeting" prospects by months is suggested simply as a means of preventing lost motion, and of concentrating your fire where it is likely to produce the greatest results.

Nothing has been said about the lumber dealers, and the peak of this particular business varies with locality. In some portions of the Dominion it could be said to take place during July, other places in June. In any event, the possibilities are great enough to warrant looking up conditions and governing your campaign accordingly. Hauling lumber and building material is hard work. The vehicle used must be prepared to climb all sorts of difficult grades, traverse soft, mushy ground, and to go over the roughest spots in order to deposit the load where the carpenters want it. The task is inhumane to put upon horses. The strain of heavy pulling soon tells on the best of animals. A good salesman capable of analyzing the situation can demonstrate to any open-minded lumber dealer that the way to lower cost of hauling may be found through the installation of heavy-duty trucks—to say nothing of speeding up deliveries.

Now the summer is over half gone and August with its lazy dog days arrives. But we have no time to rest—no time to loaf—no time to go fishing. We shall defer that until next winter after a successful summer's truck-selling campaign. August has come, bringing with it the particular sales possibilities that approach their peaks during that time.

The farmers—always close, conservative buyers—wait until they can get a "close-up" of the crop situation before making any major investments. Having looked at the crop and found it very good, they consider the means of getting it to market. Of course, they have always gotten on very well with horses, but that is no indication they would not make money by changing.

Sell the Farmer On Automotive Transportation

The best truck for the average farmer is a speedy, light delivery truck of about 2,000 pounds



Sterling trucks are now being handled in Canada direct from the Sterling Motor Truck Co. branch in Toronto. This shows a group of these trucks used by the City of Toronto.



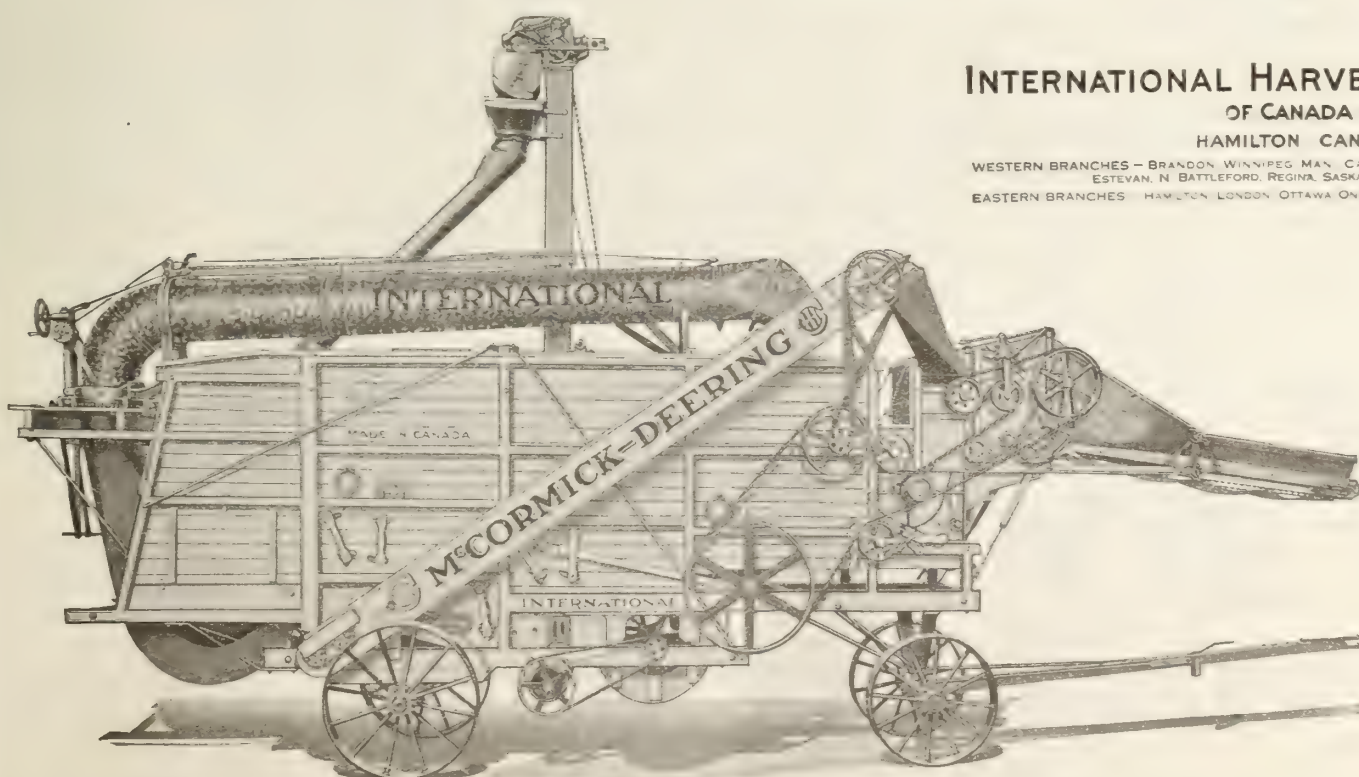
Sold and Used Throughout the Dominion

No farmer would willingly lessen the profits of his whole year's work by threshing with a worn-out, inefficient rig. Yet he often does it unintentionally. Here is the chance for the McCormick-Deering Dealer to make a life-long friend of the farmer by selling him one of the popular, grain-saving McCormick-Deering (International) Threshers.

Farmers like the McCormick-Deering because, first of all, it gets all the grain there is. It is quickly adjustable to light or heavy straw and

will take any kind of grain equally well. The separating device is the result of long experience and turns out clean grain without waste. The highest grade of material, expertly assembled with accurately fitted self-aligning bearings, assures long life and low repair expense.

The Titan 10-20 Tractor is equally well-known among farmers, and is a very satisfactory machine to sell with the McCormick-Deering Thresher. In this outfit you have a complete rig that can't be beat. Why not go out and tell the farmers about it?



INTERNATIONAL HARVESTER COMPANY OF CANADA LTD

HAMILTON CANADA

WESTERN BRANCHES - BRANDON, WINNIPEG, MAN., CALGARY, EDMONTON, LETHBRIDGE, ALTA.
ESTEVAN, N. BATTLEFORD, REGINA, SASKATOON, YORKTON, SASK.

EASTERN BRANCHES - HAMILTON, LONDON, OTTAWA, ONT., MONTREAL, QUEBEC, QUE., ST. JOHN, N. B.



The average farmer needs a truck, whether he specializes in butter, eggs, garden products, or is a straight grain farmer. The farmers of Canada offer the biggest and most productive single market for the purchase of trucks in the Dominion.

capacity. Saving time on the road is what interests the farmer who lives five, ten, fifteen miles from town. Into town and back again quickly is a factor that increases the farmer's productiveness and a speedy, light truck will soon pay for itself on any ordinary farm.

Your task with the farmer who has never experienced the use of a truck is not so much to sell him your truck, as it is first to sell him the idea of automotive transportation. Keep in mind that he is conservative—that his mind accepts radical changes slowly—and that you are asking him to overthrow a system that he has used and all his forbears since time out of mind.

It is a revolutionary step and necessitates an entirely different line of reasoning from that used for the coal man, grocer, or other merchant. You must first show the farmer how to use a truck—how to adapt it to his needs—before attempting to sell him your particular make. Don't be afraid that he will get away to the other fellow. He is not going to make up his mind in a hurry, and if you have been instrumental in converting him to a change of transportation, he is not likely to buy a truck without giving you all the best of it.

The average farmer needs a truck, whether he specializes in butter, eggs, garden products, or is a straight grain farmer. A good light truck can be used for a thousand and one different tasks, and if space permitted we could enumerate in detail the many ways a farmer can make a truck pay. But the live, progressive truck dealer will need only a hint to be able to work out a complete selling campaign based on local conditions and the individual requirements of the prospect.

The principal thing to remember is that not many farmers will buy until the crop looks safe. So it will be in order for you to watch the crop and keep yourself informed as to the true state of affairs in the country.

The farmers of Canada offer the biggest and most productive single market for the purchase of trucks in the Dominion. The next ten years will see farmers buying trucks by the thousands. It rests with you whether you get your share of this business in your community. It will require study and keen analysis and good generalship.

As August approaches its close, a class of business comes into being that presents an excellent sales prospect. It is the school bus. Every year sees an ever increasing number of school busses put into service. In the country districts, schools are being consolidated and pupils hauled to a central school, where teachers are better paid and education conducted on a modern plan. In the United States the school bus is making business for dealers everywhere. In Canada the same condition will arrive

even sooner because the need for it is greater. To get this business requires close competitive bids and the cultivation of the supervisors and officials who do the buying. No specific rules can be laid down because local conditions govern entirely.

The interurban bus lines are following hard on the heels of good roads. In many parts of Eastern Canada in particular there are profitable interurban bus lines operating between towns, twenty, thirty and fifty miles apart. This is an opportunity for sales not to be neglected, and while no special month can be set aside as the correct time to cultivate such sales, good judgment would indicate the summer as the logical opportunity.

About the time the month of August is torn ruthlessly from the calendar pad and we look over Sep-

tember with its sales-making possibilities, the coal dealers examine their delivery equipment with an eye to fitting it for the imminent busy season. Coal delivery, like lumber hauling, is usually done on time schedules and under difficulties. Horses are not fitted for the work and in the end are too expensive. Most coal men in towns of any size have already taken the step toward motorizing their hauling equipment. This transition can be hastened by intelligent propaganda directed toward that industry by the truck dealer. It may be necessary for you to sit down with the owner of the business and help him rearrange his delivery system, so that he can get the most out of his trucks. This is the kind of service that pays the best returns because when you help a man to use his truck profitably, you are building future business for yourself.

Budgeting your summer sales possibilities and following them up systematically and efficiently is a successful method, but it should not be lost sight of that all sales effort should be supplemented by that powerful sales aid—good advertising.

Specialized Advertising

During your personal drives on various kinds of business, keep your advertising campaign in motion and directed toward the same class of trade. If you are making a drive during July toward the ice dealers, the bottlers and the creameries, your advertising in the local papers should carry copy designed to appeal to these trades. Sales letters enclosing small advertising folders sent to prospects at frequent and regular intervals serve to keep your proposition before the man until he is actually ready to sign up.

In many cases the manufacturer of the truck line you handle is prepared to carry on a continuous direct-by-mail sales promotion campaign in your name, if you will supply the necessary list of prospects. All this helps materially in closing the business later on.

Window displays that attract attention are excellent from an advertising standpoint. If your show window is of good size, turn the truck on its side with the bottom towards the window, run strings or ribbons from window cards pasted on the glass to the strong features of your truck. Such a display will cause talk that gets all over town and helps to build up your reputation for being aggressive and wide awake.

The old days of "come-easy go-easy" are gone forever. We may as well make up our minds to that. But business is coming back strong. The only difference is that it is coming faster to the man who meets it half way by using keen, business-like methods combined with plenty of energy and hard work.

More About the Used Car Clearing House

By ROY A. HUNTER

SINCE the publication of the article in the April issue of this journal, dealing with Vancouver's used car clearing house, Ellis S. Wood, manager of the new company, has received several requests for further information.

One of the enquirers from Saskatchewan made his questionnaire so exhaustive that the questions raised by him, may almost cover all the questions asked.

Among other things he asked, "What kind of a contract have you with the motor dealers?"

Now when it is understood that this used car concern is in fact a subsidiary of the various concerns it serves, the matter of contract would simply be a matter of articles of incorporation, etc. The next question which dealt with the commission charged would also naturally be a matter of internal arrangement with the principals. It would be necessary to arrange a system of commissions that would make possible the service being given and at the same time to compare the cost of maintaining this separate organization, and its effectiveness, with the former method of selling old cars and its drawbacks.

The best terms on which a car can be sold are submitted to the dealer who owns the car, and when the deal is consummated, the dealer assumes the responsibility for the collection of the further payments. The salesmen in this used car display building try for at least one third cash. If a good prospect holds out for one fifth cash and terms on the balance, the used car department gets in touch with the owner-dealer who will accept or reject as his own expediency will dictate.

All cars are covered by a blanket insurance policy

while in the show room, and the cost of this insurance is pro-rated among the dealers concerned. When sold, the new owner is required to cover the car in every respect in favor of the vendor.

In answer to one question as to whether accessories, tools, etc., are also sold it was pointed out in the previous article that nothing of this kind was sold, and no repairs of any kind carried out by the used car sales depot.

Obviously, no cars are handled by this concern for private individuals as it is merely an effort on the part of new car dealers to take care of their old cars; not to engage in the used car business on its own account.

In answer to the query about serving out of town dealers, it is only necessary to state that if out of town dealers were shareholders in an enterprise of this kind, they would have their used cars handled by the company which they had helped to create for the purpose—otherwise not.

As Mr. Wood pointed out, "If dealers at large were served by a depot like this one, they would naturally send down to the used car sales floor only the 'duds' that they couldn't do anything with themselves. In fairness to such an enterprise it is necessary that the more readily sold cars as well as the 'stickers' be sent in. If the dealer sold some used cars himself, he would have to split fifty-fifty with his used car subsidiary—that is he would have to send a share of his small cars as well as a share of his big ones. Still, he would be enjoying just twice as many sales contact points. Each organization has its own prospects, and the more prospects the more sales."

The Only Vital Difference in Belt Lacings

A Message of Importance to Jobber, Dealer and User



Alligator teeth penetrate lengthwise clear through the belt. The ends protrude and are clinched down flat with a hammer in making the joint. Note the illustration. See how each tooth is a tiny vise, holding its share of the burden bearing belt fibres in a powerful pressure grip—making Alligator Steel Belt Lacing the strongest on earth.

*Compare This Grip
With Other Lacings*

"Only a Hammer Needed to Apply it"

Men are continuing to adopt Alligator Steel Belt Lacing as they realize that its greater strength means more continuous use of belt driven power, less rending and tearing of belt ends and actual cash savings far beyond the consideration of the cost of the lacing.

Applied with only a hammer in an average of 3 minutes' time. No experience needed to make a smooth perfect hinged joint. A size for every thickness of belt.

If you are not either selling or using Alligator, write us for small sample on belt, literature and prices.

Flexible Steel Lacing Company

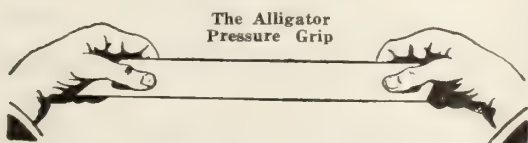
4653 Lexington Street

CHICAGO, U.S.A.

In England at [135] Finsbury Pavement, London, E. C. 2

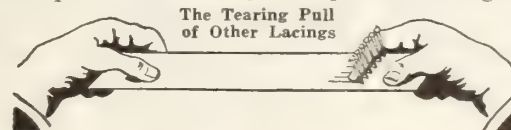
Prove this big point to yourself with the simple test below

Stretch a strip of paper in steady equal pull to break it, as illustrated—Note strength.



The Alligator
Pressure Grip

Set a row of pins across a strip of paper. Hold it without pressure between the fingers and pull—Note the slight comparative strength.



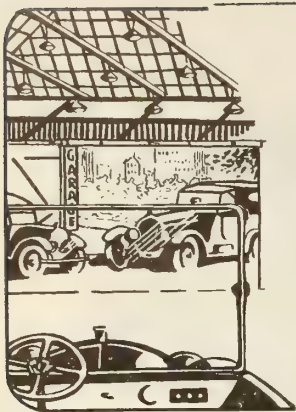
The Tearing Pull
of Other Lacings

ALLIGATOR

TRADE MARK REG. U.S. PAT. OFFICE

STEEL BELT LACING

Sold by Leading Jobbers Throughout Canada



Helpful Shop Notes for the Garage Man



Adjusting the Cone Clutch

SERIOUS clutch trouble can be confined to three classes: clutch grabbing, clutch slipping, and clutch sticking to the crankshaft extension, resulting in dragging. There are a few minor causes of complaint and some faults that can be traced to improper clutch operation that do not come under the subjects given above.

Clutch grabbing is usually caused by dry or worn clutch facing, excessive tension on the clutch main springs, or improper adjustment of the clutch plungers.

If the leather is exceptionally dry and hard, gradual engagement is impossible, as the entire clutch leather surface engages simultaneously. If the leather is worn down to the rivets holding the leather on the cone, and

leather is firmly seated, engage the transmission gears in the high-speed position with the car standing, and stall the engine by allowing the clutch to engage gradually after the motor is throttled down to its minimum speed. Adjust the nuts on the stems of the plungers to give the proper clearance, then disengage the clutch and see that the clutch plunger springs force the nuts up tight against the spider. If there is any indication that they are not doing so, examine the plunger and see that it is free in the guide, and if it does not stick determine whether or not the spring is at fault by pulling down on the nut on the plunger stem.

Slipping clutch is caused from insufficient tension of the clutch springs, by the friction surface being so worn

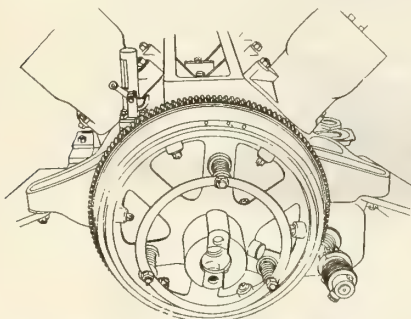


Fig. 1—Full view of clutch showing three main springs and six plungers and nuts.

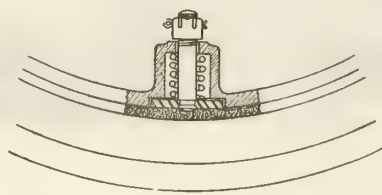


Fig. 2—Detail of clutch plunger and spring, with nut properly set while clutch is fully engaged.

bears on the clutch surface in the flywheel, some grabbing of the clutch will be experienced. This will ordinarily be denoted by squeaking as the clutch goes into engagement, and may be distinguished from other grabbing trouble by this characteristic. Too great tension of the clutch springs will cause grabbing, because of the fact that so much pressure is required on the foot pedal to release the clutch that it cannot be relieved gradually. Improper adjustment of the clutch plungers will cause grabbing, inasmuch as their function is to allow gradual engagement.

To overcome dry leather, apply Neatsfoot oil, preferably with a grease gun, in the space between the clutch leather and fly-wheel when the clutch is disengaged. Allow the clutch to come into engagement, then disengage again, and continue this operation until the oil is thoroughly distributed over the surface of the clutch leather.

The clutch springs should be so adjusted that there is just sufficient tension to prevent the clutch slipping. This will insure a minimum amount of effort being expended on the clutch pedal for disengaging.

The clutch plungers must be so adjusted that they raise the clutch leather slightly above the surface of the clutch cone, at the point over the clutch plungers. Fig. 2.

The nuts on the clutch plunger stems that extend through the clutch spider should be adjusted to leave a clearance of 1/16 to 1/32 of an inch between the nut and the spider when the clutch is fully engaged. To determine that the

that complete engagement of the surface is prevented by limitations of the clutch cone travel, or by collection of grease on the facing.

Screwing up the clutch spring adjusting nuts will overcome the first fault. If the facing is so worn that a thorough application of Neatsfoot oil will not eliminate the fault, a new clutch facing should be installed.

Grease may be removed from the surface with kerosene or by scraping. Should the leather be saturated with lubricating oil, plentiful applications of Fuller's earth will absorb the surplus oil and a treatment with Neatsfoot oil will overcome the fault. Never allow water or gasoline to come in contact with the clutch leather as it drives out the oil and hardens the facing.

If the clutch cone bushing that bears on the crankshaft is allowed to become dry it will seize on the crankshaft and the clutch will drag or continue to rotate when the pedal is depressed. To overcome this fault it is usually necessary to replace the bushing and to smooth the end of the shaft.

Clutch Brake

The clutch brake is to be so set that it stops the rotation of the clutch cone when the cone is drawn off its seat in the fly-wheel. If it is set up too close the clutch cone will stop rotating too soon and some trouble will be experienced in shifting gears. If it is set too far back the same trouble will be experienced, due to the fact that the clutch cone does not immediately stop rotating, owing to its inertia.

To set the brake properly adjust it so that the clutch cone starts to bear on the clutch brake just as the cone fully releases.

If squeaking or chattering is heard momentarily after the clutch is engaged when the car is standing, or continuing until the gears are disengaged if the car is moving, the trouble will be found in the clutch brake, due to excessive wear of the fibre pad so that the cone strikes the rivets instead of the fibre. To overcome this fault replace the fibre.

Installing New Clutch Leather (Cone Type)

After the clutch cone is removed from the flywheel remove the old clutch leather by cutting the rivets off on the inside of the clutch cone. Draw the clutch plungers down below the face of the clutch cone either by screwing up on the nuts on the plunger stem or by inserting spacers between the nut and the clutch cone. Soak the new leather in Neatsfoot oil until it is thoroughly softened and then place small end down on a flat surface. Start the clutch cone into the leather and drive down with a rubber mallet or a wooden block until the leather is drawn back to the shoulder or flange on the clutch cone all the way around.

Next, punch holes in the clutch leather immediately over the rivet holes in the clutch spider. To do this it is necessary to use either a standard belt punch with punch of a size that will go through the hole in the cone, or a drift 1/8" in diameter that is ground off square, leaving the edges sharp. Rest the clutch leather on the end grain of a block of hard wood. The drift can be hammered through and will punch fairly clean holes if it is kept sharp. It is

through the leather and cone from the outside.

If split rivets are used, spread the points down enough to hold the rivets in the cone. With tubular rivets, spread the point with a heavy center punch, or with a special heading tool, as shown in the illustration. Then rest the head of the rivet on the end of 1/4" iron rod held securely in the vise and rivet down the split end until the head is drawn below the surface of the leather.

An alternative of this method may be used where an anvil that fits close inside of the cone is used against the split end of the rivets and the ball end of the hammer used to drive the head below the surface of the leather.

Clutch Roller Adjustment (Cone Type)

Before attempting to adjust the clutch rollers remove the floor boards and, with the clutch engaged and the gears out of mesh, allow the engine to idle. The clutch spacer must run true, for if it runs out it will be impossible to secure quiet clutch roller adjustment.

With the spacer running true adjust the rollers so that the flat sides next to the spacer are equally distant from the spacer. This will prevent any tendency for the spacer to strike the sides of the rollers should it run out when the clutch is disengaged.

To make this adjustment loosen the spacing collars on the clutch shifter yoke on each side of the rollers and shift the yoke and the rollers to the correct position.

The two rollers must each engage the spacer shaft, when the clutch pedal is depressed, at the same time. If there is a tendency for one roller to touch before the other, the spacer shaft must be bent to make them engage simultaneously.

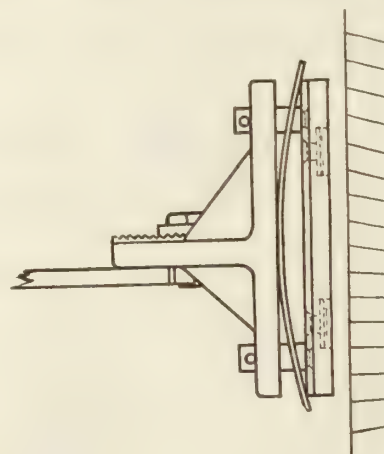
The rollers must be perfectly free on their studs, otherwise flat spots will be worn on the face of the rollers, which will result in excessive noise.

After the rollers are adjusted so that they bear uniformly on the clutch spacer shaft when the pedal is depressed, adjust the adjusting clevis or adjusting screw on the clutch pedal so that the rollers are drawn entirely away from the clutch spacer when pressure on the pedal is released. This will prevent them turning when the clutch is engaged.

FORD STARTS MAKING ITS OWN BATTERIES

DETROIT.—Ford Motor Co. has started the manufacture of batteries on a scale which will permit it to equip a certain proportion of its cars and trucks with batteries of its own construction. Officials declare that the manufacture of batteries is in the nature of a test and that it is not the intention, at least for the present, of manufacturing all batteries for the company's requirements.

Location of the battery division is in the Highland Park plant, which also houses other experimental divisions, notably a section which is now producing glass for windshields for Ford cars. The battery is said to follow customary practices and to be of about the same general character as the batteries which have been used as standard equipment on Ford cars.



Detail of clutch Brake, showing adjusting rack, spring in full open position and rivets properly set below the surface of the fibre.

advisable to follow this method in locating the rivet holes rather than to attempt to insert the rivets through the leather face.

During the operation of punching the holes every precaution should be exercised to see that the leather does not draw away from the flange on the cone, and that the leather does not slip during the operation.

After all of the holes are punched insert standard split copper rivets 1/8" x 1/2", or tubular rivets, and drive them

New JARDINE Garage Equipment

Universal Tire Changer

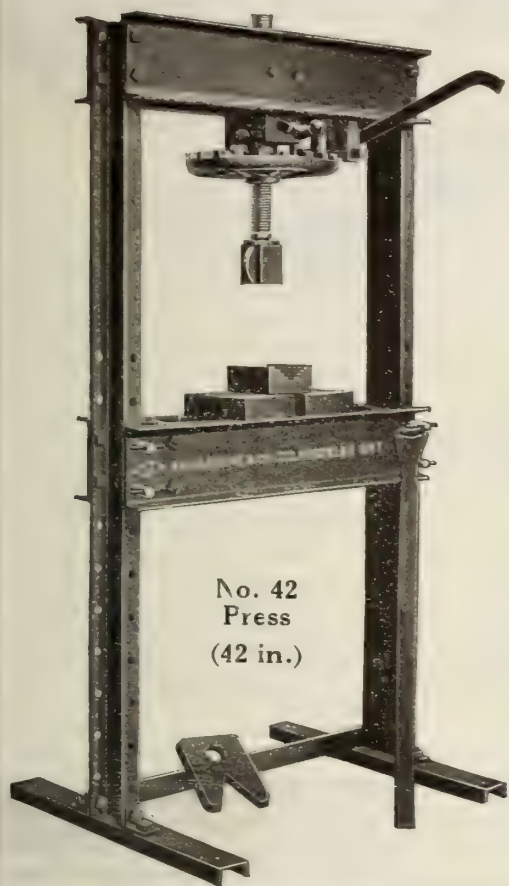
So simple and easy to operate that a boy can change the most stubborn tire in a few minutes. The principle of operating the sliding jaws together with the compensating jaws for contracting the rim and the rollers which operate when expanding the rim, places this machine beyond competition. Price \$55.00.

Sturdy Arbor Press

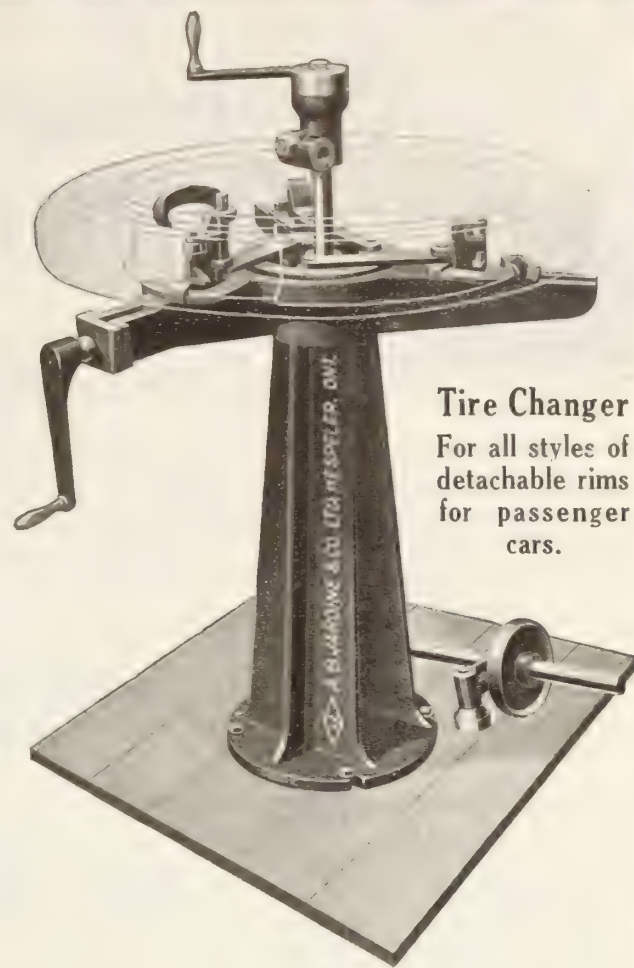
Jardine Presses are specially designed to allow for the enormous stresses and strains to which presses are subjected. Many features common to Jardine Presses are not to be had on other presses.

Prices—32 inch, \$95. (with Rack Press Attachment, \$133.)

42 inch, \$110. (with Rack Press Attachment, \$145.)

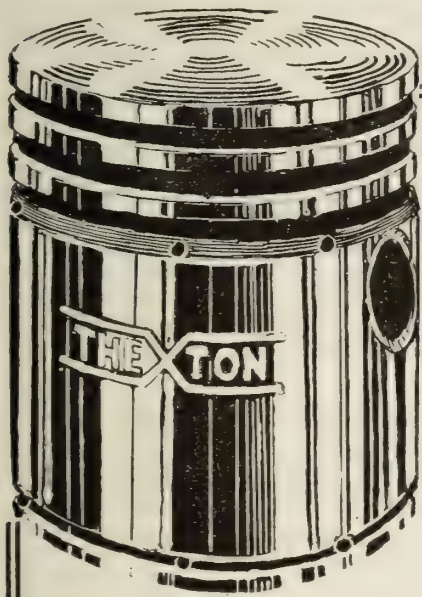


No. 42
Press
(42 in.)



Tire Changer
For all styles of
detachable rims
for passenger
cars.

A. B. JARDINE & CO., LIMITED
HESPELER, ONTARIO



Replacement PISTONS and PISTON PINS

Made for Service—No Freak Ideas

LEAVE the experimenting to the other fellow—it's not only too expensive but it means endless trouble.

You'll save a lot of worry by ordering from us—worth making it a habit. Largest list of any Canadian manufacturer. Only standard designs. Write direct if your jobber is not handling them.

Repair Men: Send us your cylinder grinding jobs. Our equipment is right up-to-the-minute, our workmen "know how," and our prices are right.

Thexton Machine Works, Limited

736 Dundas St. E.,

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Phone Main 4233W

From 117 to 55,000

In 1905, one Automobile Manufacturer in Canada turned out 117 cars. In 1921, the same manufacturer turned out 55,000.

How was it done?

We are going to explain by giving a full description of about 30 different plants in Canada, giving the value, year's activity, and other important figures. There will be articles on Truck Maintenance; Cylinder Regrinding; Small Accessories, and practically everything dealing with the automobile trade. It will be an

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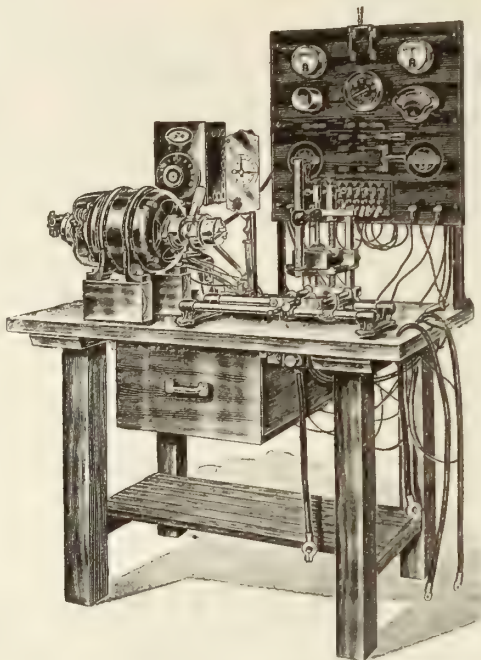


Automotive Accessories and Implement Equipment

NIEHOFF A.E.S. TEST BENCH

THIS bench is for making running tests on starters, generators, magnetos, distributors, etc. The adjustments are conveniently arranged to enable the operator to make connections and readings with the least effort. The motor is $\frac{1}{2}$ H.P. either A.C. or D.C., and is designed to carry approximately 50 per cent overload. It will operate on either 110 or 120 volts. The electrical control has variable speed for 700-3500 r.p.m. There is a reversible through switch on the board. The test vise is adjustable; distributors can be mounted horizontally, by use of "v" blocks. The drive chuck is three inches, 3-jaw, self centering.

Other specifications are: tachometer, registering from 300-3600 r.p.m.; automatic cutouts, 6 and 12 volt type; torque scale, with brake with which load capacity tests can be made of starter; ammeters, voltmeter, spark gaps, cables and terminals, starter switch and spinal tail-stock lathe attachment, with centre which can be mounted on the vise saddle, for centering and chalking armatures, for dressing commutators and wrapping windings. Made by Paul G. Niehoff and Co.



Niehoff Test Bench

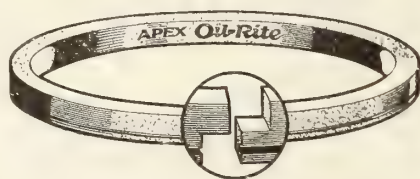
IMPROVED AC SPEEDOMETER AND DRIVE FOR FORD CARS

AN IMPROVED speedometer and drive for Ford cars has been placed on the market by the AC Spark Plug Co., manufacturers of the AC Spark Plug.

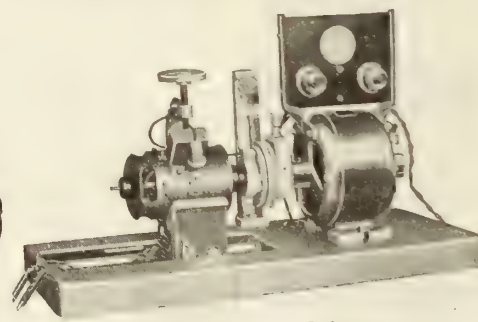
One of the exclusive features claimed for the instrument is that it indicates evenly, steadily and accurately even on rough roads. A 100 mile trip register with tenths, and 100,000 mile total register are provided. It also shows miles per hour from 1 to 70. The AC speedometer is driven from the right front wheel, and can be attached without drilling holes in the hub flanges or spokes. Three of the regular flange bolts hold the drive gear, which is connected with the flexible shaft by a coupling that eliminates the need for a swivel. It is a fully jeweled and self lubricated magnetic instrument with black face and white figures. The rim is solid brass nickeled.

ELECTRIC TEST UNIT

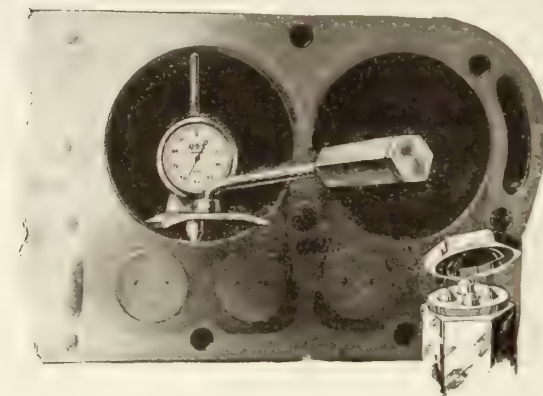
THE Service Products Company have placed on the market an electric test unit known as model TF-7 for testing the complete Ford F-A starting and lighting system. It is driven by a $\frac{1}{3}$ H. P. motor, either A.C. or D.C., with a range of 1,750 r.p.m., the base of the unit is of metal construction, measures 14x28, and is provided with slide rails on which is mounted a "v" block for holding generators and starting motors. The unit is equipped with scale for starting motor tests. Both scale and brake used for torque tests are intended to remain in place while testing generators. A flexible coupling will take both generator and starting motor shafts. A snap switch on panel-board controls operation of the motor, another is provided for growler or armature test.



Apex Oil Ring



Electric Test Unit



Ames Junior Dial Cylinder Gauge



Lupton Auto Parts Storage

FLOOD CIRCULATING PUMP

THE Luther Grinder Mfg. Co. recently put on the market a flood circulating pump for cars and trucks.

Among the special features claimed for this pump is its simplicity and easiness to install—no drilling or mechanical change being necessary. By virtue of its position on the Ford engine, its installation will not interfere with attaching a high tension magneto, or other accessories attachable to the engine.

A double pulley makes the pump applicable to any year model Ford from 1916 to 1922. The construction of the screw propeller is such that should the belt become disengaged, the pump will not interfere with the circulation in the cooling system. Other features include a specially built bronze bearing and stuffing box to prevent leakage. The lower chamber also serves as a sediment holder, and is cleaned by removing the plug below. The drive belt is treated to make it impervious to oil.

The Flood Pump the makers say will change water in the engine once a minute at a speed of twenty miles an hour.

APEX OIL-RITE PISTON RINGS

THESE rings are individually cast from high-grade gray iron. Quick seating is secured, the makers say, by minute serrations machined around the ring face circumference. These serrations it is claimed also tend to fill up any slight out of roundness of cylinders. A "U" shaped groove cut in the lower part of the ring face, holds a cushion of oil which supplies a lubricating film between the ring face and the cylinder wall and at the same time reduces the facial bearing surface of the ring. The rings are step cut. Made by the Thomson-Friedlob Mfg. Co.

LUPTON AUTO PARTS STORAGE

LUPTON auto parts storage systems are designed to care for proper quantities of repair parts so selected that the dealer has a complete stock with a minimum investment in parts. Parts are systematically grouped. Each bin is labelled with the number or part it contains. The units are of uniform size, parts being accommodated by varying the proportions of the bins within the units. They are constructed of steel and finished in green enamel. Made by David Lupton's Sons Co.

AMES JUNIOR DIAL CYLINDER GAUGE

THIS gauge shows straightness, roundness, size and scored cylinders. It measures between two points of contact in the cylinders. The makers say it is quickly and easily set to outside micrometers and will test all sizes from $2\frac{3}{4}$ to 5 inches. When in use a contact point of proper length is selected and by moving the gauge back and forth in the cylinder the pointer at the dial will show the variations. It is made by B.C. Ames & Co.

Why Does the McLaughlin-Buick Dealer Value His Franchise?



McLaughlin-Buick dealers have their representation of McLaughlin-Buick cars so highly because they know it means business for them in "lean" years as well as "good."

This is true because of the reputation McLaughlin-Buick cars have maintained over many years for stability, performance and satisfactory service.

Occasionally there are openings in the McLaughlin-Buick organization for more high-grade dealers. Write if interested.

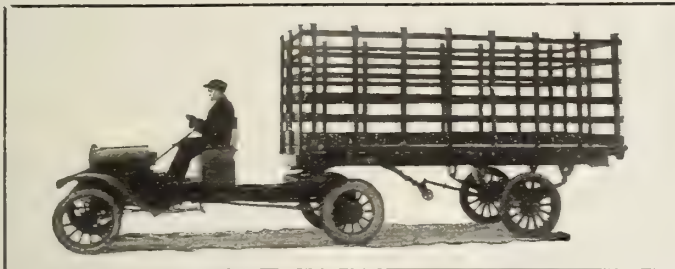
McLAUGHLIN MOTOR CAR CO. LIMITED, OSHAWA, ONT.

Subsidiary of General Motors of Canada Limited

McLAUGHLIN BRANCH HOUSES:

140-144 Union St.	-	-	ST. JOHN, N.B.	Bathurst & Richmond Sts.	-	-	LONDON	First Ave.	-	-	-	SASKATOON
Crescent and St. Catherine Sts.	-	-	MONTREAL	36-40 Bay St., S.	-	-	HAMILTON	331-341 7th Ave., W.	-	-	-	CALGARY
2 Bridge St.	-	-	BELLEVILLE	204-212 Princess St.	-	-	WINNIPEG	10048 104th St.	-	-	-	EDMONTON
Church & Richmond Sts.	-	-	TORONTO	14th Ave. & Broad St.	-	-	REGINA	1219 Georgia St.	-	-	-	VANCOUVER

BETTER AUTOMOBILES ARE BEING BUILT AND McLAUGHLIN IS BUILDING THEM



What a Trailer Will Save You

SUPPOSE, for instance, you own a two-ton truck. You know its rated capacity; you realize also, perhaps, that it could move twice its rated capacity—if you but dared to use the full power of the truck. You dare not do this because the chassis could not support the burden with safety. That's a sheer waste of power, isn't it?

Suppose, now, you add a Trailer—a Dominion Trailer. In the first place you are able to utilize every bit of your truck's power without danger of overloading; secondly: it means a definite reduction in cost per ton mile of from 40% to 45%.

And here's another point worth your consideration: the cost of a Dominion Trailer is only one-third that of a two-ton truck!

Tell us what you want it to do and we will show you just what the Dominion Trailer will save you—write us.

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Trailers, Hoists,

DOMINION
TRUCK EQUIPMENT
COMPANY, LIMITED

Dump Bodies
and
Truck Units

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LETERAIN

Let's go!



"Leterain"
is the World's Recognized
Windshield Cleaner

We guarantee "LETERAIN" to keep your windshield clear during TWELVE HOURS under the heaviest rain or fog and to positively last a whole year, or we'll refund the money. It is the only recognized successful windshield cleaner on the market and stands in a class by itself. It can be used on either wet or dry glass and will give equal satisfaction. Packed in a POCKET SIZE CONTAINER to preserve it from grease or dust when carried in your automobile.

MAIL ONE DOLLAR

and drive your car in safety and with comfort for a whole year under the worst weather. Remember it will keep your entire windshield clean.

Sole Canadian Licensee

The "Leterain" Sales Company
180 St. James Street Montreal, Que.

Territorial agents and dealers write for best proposition in the Automotive Field.



AUTOMATIC HOPPER DUMP BODY

THE Dominion Truck Equipment Co., Kitchener, Ont., are manufacturing automatic dump bodies for hauling concrete, etc., in connection with all kinds of road work and building construction. The bodies are built with the contractor's needs in view and are constructed of steel throughout. All parts are joined with large sized rivets. In mounting these bodies it is only necessary to set them in the proper position and fasten them to the chassis frame with "u" bolts furnished with the body. There are no connections to make to the running parts of the truck. When unloading the body rolls over, and in charging a concrete mixer it throws the material well forward into the skip. Large heavy flanges along the rolling surfaces of the body prevent shifting sideways both in carrying and dumping. These bodies can be used on trailers or on trucks, from the smallest truck to the largest tractor.

K. AND S. WHEEL CRANE

THIS wheel crane is designed to facilitate the removal and replacement of heavy motor truck wheels. It is built of structural steel. As the wheel is suspended from the top, the makers claim that freedom of movement necessary for replacing the wheel with ease is obtained. The front is equipped with wheels and the rear with ball bearing castors. The crane is operated by a hand-actuated hydraulic pump. It has a working capacity of three thousand pounds. It is made by the Kelley & Stewart Co.

TELTAILITE

THIS is a coil and pilot light to be connected with the wiring system of any stop signal and indicates at the dash whether or not the signal is functioning. It becomes part of the wiring system and requires no attention. The pilot light shows when the signal light comes on and remains lighted when the signal is lighted. If the pilot light burns out, the signal will not be interrupted, but failure of the signal for any reason will be shown at the dash. The teltailite can be applied to the tail light and the dash light. It is made by the Potter Specialties Co.

WESTINGHOUSE SPARK-C IGNITION TESTER

THE Spark-C is an ignition tester by means of which flashes appearing at the window of the tube indicate the condition of the ignition system. It is designed for testing any internal combustion engine using electric ignition. By observing the nature of the flashes at various parts of the ignition system, the makers say, the operator can readily locate the trouble. Made by the Canadian Westinghouse Co. and distributed by Hyslop Bros., Toronto.

PETROMETER

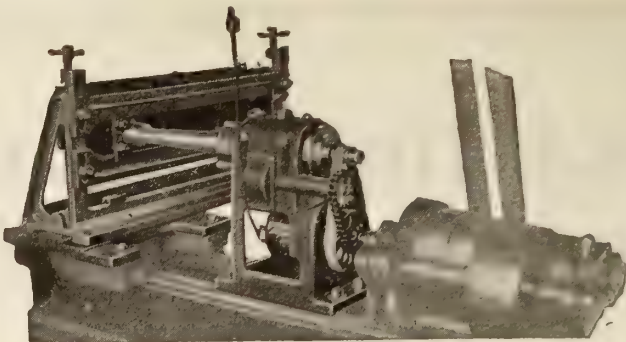
THIS is a gasoline gauge which is mounted on the instrument board. It combines a gauge, a tube inserted in the top of the gasoline tank running through to the bottom and a thin hollow wire connecting the two. The glass tube in the gauge contains a red fluid which indicates by different levels and the markings beside it the quantity of gasoline in the tank. It is applicable to all motor vehicles. Made by the Porter Electric Carburetor Co.

TWINLOCK TIRE LOCKS

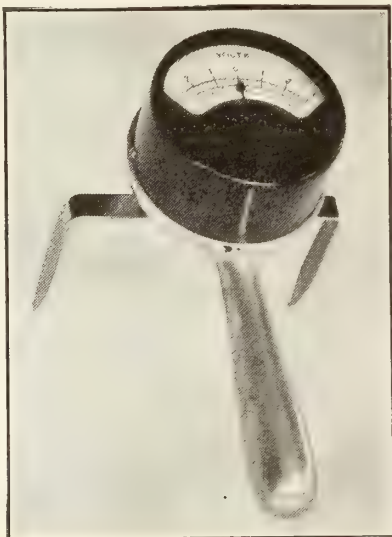
THIS device carries and locks two spare tires at the same time. It can be attached to any car which is equipped with a ring tire carrier. It is triangular in form and sturdily constructed. Made by the M. A. Petry Co.



Teltailite



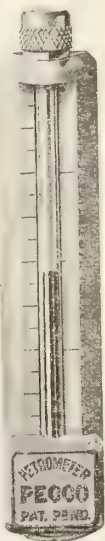
"Elteco" Cylinder Grinding Machine



Hyrate Volt Checker



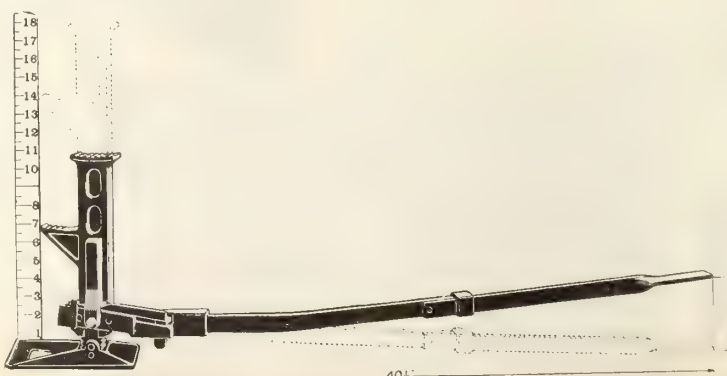
Twinlock Tire Lock



Petrometer



Westinghouse Spark-C Ignition Tester



Dextra Jack

LIBERTY "ELTECO" CYLINDER GRINDING MACHINE

THE LIBERTY Tool Company has recently placed on the market the "ELTECO" cylinder grinding machine shown in the accompanying illustration. The machine is intended for attachment to an engine lathe having a swing of 14 in. or more. The work holder is mounted on the carriage of the lathe, the spindle head is mounted on the ways, and the headstock of the machine is utilized to drive the mechanism for imparting a rotary feed motion to the wheel spindle. The latter arrangement permits of as many changes of rotary feed as there are speeds for the spindle of the lathe.

All sizes of cylinder blocks can be ground, the inside dimension of the angle plate being 33 in. in length. The opening between the parallel bars on the plate can be varied from 2½ to 7 in. Straps and the necessary screws for holding the blocks in place are furnished. Movement along the bed is obtained by the carriage of the lathe. The work-holding block is provided with a screw 1 in. in diameter for transverse feed. The work is raised and lowered by means of screws placed at each end.

The spindle is mounted in three S. K. F. self-aligning ball bearings, and the main bearing is made of phosphor bronze. It is driven by means of a ½ h.p. electric motor, current ordinarily being taken from a lighting circuit. The spindle extension is 14 in. in length; the main spindle is 4¼ in. in diameter and 9 5-16 in. in length. An eccentricity up to 1 in. in diameter can be obtained, the amount being varied by means of a screw graduated to 0.0005 in. Cylinder bores from 2 11-16 to 7 in. in diameter can be ground. The speed of the spindle is 5,600 revolutions per minute.

The rotary feed motion of the grinding spindle is obtained from the spindle of the lathe, a sprocket fastened on a taper fitted in the lathe spindle serving to drive a chain connected to the grinding machine. The longitudinal feed of the work is obtained by using the feeds provided for the lathe carriage. The machine is fully equipped with the necessary sprocket wheel, diamond dresser, abrasive wheels, screw jack, holding straps, clamping and drawing screw and wrenches. It weighs approximately 500 lb.

HYRATE VOLT CHECKER

THE HYRATE Volt Checker is the latest addition to the list of electrical equipment manufactured by the Service Station Supply Co. It is a volt meter with a zero center scale reading to 3 volts on either side. It is equipped with two side spikes and a convenient handle. With the Hyrate Volt Checker with its stationary prods and its zero center scale only one hand is necessary to make the reading, leaving the other hand free to record the readings of the instrument. With the zero center scale the makers say there is no danger of reversing the meter as the needle will swing either way.

Another feature claimed for this device is its ability promptly to find polarity. This can be readily determined as the needle swings always to the negative post and instructions are so recorded on the face of the instrument itself.

DEXTRA JACK

THE MAKERS claim close to twenty features for this jack. On account of its low construction it can be used under any car. A long handle, 32 in. in length, that folds up to 18 in. for storage in the tool box, enables the person to use the jack from some distance from the axle.

It can be raised to the load without pumping. The reverse is operated by a pull of the handle. As soon as the weight of the load is relieved, the jack automatically resumes its original height and can be drawn from under the car. A double ratchet makes the jack operate on both the upward and downward stroke. The jack is constructed of malleable iron and chrome nickel steel. Made by the Dextra Mfg. Co.

NEWS — OF THE TRADE FOR THE TRADE

ALBERTA

CALGARY:—The J. T. Graham Motors, agents for Studebaker cars, have moved to more commodious quarters.

EDMONTON:—The Columbia Battery Service Station, at the corner of Jasper Avenue and 104th Street, formerly operated by the Burnham Frith Co., is now under the management of R. J. Duguid.

EDMONTON:—D. C. McPhee and S. Nichols have opened an automobile machine shop on 106th Street. The equipment includes several lathes, drilling machines, a milling machine and a No. 65 Heald cylinder re-grinder.

BRITISH COLUMBIA

NEW WESTMINSTER:—J. Markle, who has been local representative for Durant cars, has been transferred to the distributing end of Durant business in B. C. Mr. Markle will be attached to the firm of Pinner, Bartliff Motors Co., Vancouver.

ONTARIO

TORONTO:—Metropolitan Motors, Temperance Street, have been appointed distributors for Columbia "6" cars.

LONDON:—Frank McLachlin, Studebaker dealer, has remodeled his garage and showroom at 86 King Street.

GODERICH:—H. Jane has opened an automobile electric and battery service station here. He will specialize

in battery repairs of all makes, battery charging, and general overhauling of electric system.

WOODSTOCK:—Elliott Bros., Dodge dealers, have added radio receiving sets to their regular line of automotive equipment.

LONDON:—Hodgins and Ferguson, distributors for Western Ontario of Paige and Jewett cars have added to their line the G. and J. trucks.

HAMILTON:—J. E. Longley, for thirteen years connected with the Reo Motor Car Co., has been appointed manager of that company's Hamilton branch.

WELLAND:—A line of storage batteries is now being made here by Graham Bros. The types made are six volt standard 11 plate, six volt standard 13 plate and twelve volt standard 7 plate.

TORONTO:—R. C. Todd and Co., have completed arrangements with the Davis Motor Car Co., of Richmond, Ind., whereby they will distribute Davis cars throughout Ontario. Six models, ranging from a new phaeton to the model 66 sedan, comprise the Davis list.

LONDON:—J. D. Isaacs, who has been 10 years with the Ford Motor Company of Canada, has left the position of service manager to take up his duties as president and general manager of the Middlesex Motors, a company recently organized in London by him. The new company will handle Ford and Lincoln cars.

the past three years he has been in charge of the factory sales division of the Fairbanks Morse Co.

M. O. Andrae has been appointed Toronto branch manager. Mr. Andrae comes to Toronto from the Sterling organization at Milwaukee, where he was for some time in the cost department and lately in charge of Milwaukee City branch.

R. Bagnall is in charge of Service. Mr. Bagnall has also been for many years connected with the Sterling factory.

PREMIER TIRE AND RUBBER CO. MOVE TO NEW PREMISES

THE PREMIER Tire and Rubber Co., manufacturers of Epok inner tubes and distributors of Seiberling tires and other automotive equipment, have moved their premises at Toronto from 707 Yonge Street to 116 Adelaide Street W.

The Epok inner tube made by this company has a fabric lining. This lining is one-ply fabric giving a reinforcement against puncture. It is being manufactured at the company's factory in Beamsville, Ontario.

The Seiberling tire distributed by this company in Ontario and Quebec is manufactured by the Seiberling Bros., Akron, Ohio.

JOHN LAUSON IS DEAD

JOHN Lauson, president of the John Lauson Mfg. Co., New Holstein, Wis., died April 15, following an operation in a Milwaukee hospital. He was 54 years old. He started the company, which bears his name, at the age of 19. He is survived by his widow, a son and daughter, one sister and three brothers, one of whom, H. D., is identified with the Lauson Company.

MCGONIGAL HEADS CLETRAC IN CANADA

S. A. McGonigal has been elected president and managing director of The Cleveland Tractor Co. of Canada, Windsor, Ont., succeeding J. L. Hibbard who has resigned.

Business is good
with

Overland
TRADE MARK REG

Retail sales of Overland cars this year have passed all previous records.

The big increase in the number of Overland owners means increased business, too, for all dealers in tires, fuels and accessories.

Overland is not an assembled car. It is completely made in the Toronto factories. Dealers, therefore, have quick service in obtaining parts from factory or branches.

The New Series Overland is now well established as Canada's Comfortable Low-Cost Car—its dependability and economy are proved by thousands of Canadian owners.

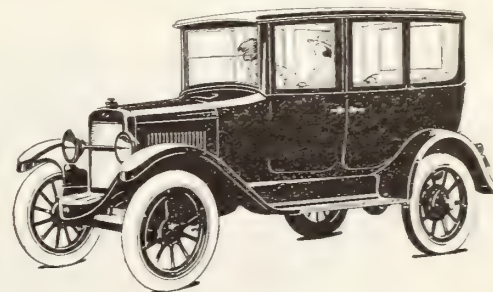
An Overland Contract is a Valuable Franchise

The satisfaction of owners and the big turn-over to be obtained from selling a popular car like the Overland mean growing profits for Overland dealers. We have openings for live automobile merchants in several places and will welcome enquiries.

Head Office and
Factories:

**WILLYS-OVERLAND
LIMITED**

Toronto Canada



CLEVELAND TRACTOR CO. REORGANIZED

CLEVELAND, Ohio.—The Cleveland Tractor Co., makers of Cletracs will be reorganized as the Allyne-Zeder Motors Co. to manufacture and market the new six-cylinder car which is being designed by F. M. Zeder, formerly chief engineer of the Willys Corporation and the Studebaker Corporation. The reorganization will be brought about by adding approximately \$5,000,000 of new capital to the present assets of The Cleveland Tractor Co., resulting in a corporation with a capital of \$10,000,000 of preferred stock and 200,000 shares of no par common stock.

A new corporation subsidiary to the Allyne-Zeder Motors Co. will be organized under the name of the Cleveland Tractor Co. and will continue the marketing of Cletracs through its present distributors and dealers. A new one-ton truck embodying advanced details in design, engineered by Rollin H. White, will be added to the Cletrac line in the near future. The reorganization plan is practically ready for submission to stockholders of The Cleveland Tractor Co., and the co-operation of several of the larger stockholders practically assures its adoption. E. E. Allyne, second largest stockholder in the tractor company, whose name is included in that of the new company, is a director of the Aluminum Manufacturers, Inc.

The Allyne-Zeder Company will bring back to the automotive industry two members of the Studebaker family who have been prime movers in the reorganization. They are Clement Studebaker, Jr., and his brother, Col. George M. Studebaker. Both formerly were directors of the Studebaker Corporation and they are the controlling factors in the Citizens National Bank of South Bend. Both have other large financial interests. Clement Studebaker will be chairman of the board and his brother vice-president.

Rollin H. White, president of The Cleveland Tractor Co., and a director of the Aluminum Manufacturers, Inc., will be president of the new corporation.

HART-PARR TRACTORS REDUCED

THE HART-PARR Company announces that effective June first the price of the Hart-Parr "30" will be \$1,250 F.O.B. Winnipeg. The price of the Hart-Parr "20" will be \$1,070 F.O.B. Winnipeg.

In making this reduction the Hart-Parr Company expects to add impetus to the returning market by offering the farmer at the approach of his season of need an opportunity to obtain his tractor at the lowest price ever quoted by this concern.

The new price of the Hart-Parr "30," \$1,250 is \$600 below the peak price of 1921, and several hundred dollars lower than the Hart-Parr "30" has ever been listed before in Canada. The new price of the Hart-Parr "20" is over \$400 below the 1921 peak price on the machine. With the readjustment going on in labor and raw materials market, where conditions in many lines are showing a trend towards higher prices, no guarantee is given by the Hart-Parr Company as to the length of time these new prices will continue.

MAXWELL CHALMERS ELECTS J. L. HIBBARD PRESIDENT

AT A meeting of the board of directors of the Maxwell Motor Company of Canada, and the Chalmers Motor Company of Canada, John Lawrence Hibbard was elected president and general manager. Mr. Hibbard will take charge of the operations of both companies immediately. A graduate of the University of Michigan, the new president first entered the automobile field with the Studebaker Corporation. After serving with that concern as export sales manager, he transferred to the sales department of the Cleveland Tractor Company,



G. B. WHEELER
Canadian Sales Manager, Sterling Motor Truck Co.

also planned to cover Canada with a chain of factory branches or dealer service stations.

G. B. Wheeler, formerly factory sales manager for the Canadian Fairbanks Morse Co., Toronto, has been appointed Canadian sales manager.

Mr. Wheeler was with the Canadian Fairbanks Morse Co. for fifteen years, twelve of which were spent in building up an organization of dealers in Eastern and Western Canada. For

Sell the line already half sold

Sales Made Easy

Not only does the reputation of Lister lines make sales easy but to suit present day conditions we are making a

SPECIAL PRICE OFFER

Get particulars and write for agency proposition.

R. A. Lister & Company
(Canada) Limited
Toronto and Winnipeg

Dairy and Household Supplies

Dairy Equipment from a New Angle

By CLEMENT WHITE

CONSIDERATION of the matter shows why the demand for dairy equipment will continue to increase. In the first place it is encouraging to note that the success of the dairy business isn't dependent upon sporadic "booms," or is a branch of the farming business which is picked up one day and discontinued the next. Dairying is a business which appeals to practical farmers, and, as interest in better farming methods continues to increase, the popularity of the dairy industry shows a proportionate development. Dairying makes for safe farming; for this reason many dealers encourage their customers to keep more cows, and to adopt methods of handling the cows and dairy products which eliminate needless labor and increase net profits. There will always be a demand for dairy products; for this reason the dairy equipment business may be regarded as a permanent asset by dealers who desire to increase their trade.

It is encouraging to note that the men who specialize in dairying are not the sole buyers of cream separators, milking machines and stalls and stanchions. General farmers who keep cows as a side line appreciate the need of conducting this branch of the farming business in a modern way, and on every hand see evidence of the profit-making possibilities of modern dairy equipment. This is why the dealer who is located in a section where diversified farming is the rule should not despair of finding buyers of dairy equipment. Educational work on his part will assist in bringing general farmers to the decision that money invested in dairy equipment pays good dividends, and that success in dairying is difficult to achieve unless suitable equipment is provided.

The term "dairy equipment," means more to-day than was the case in past years. In the good old days when a battered pail and a three-legged milk stool comprised the farmer's equipment for milking cows, dealers made small profit from the sale of dairy equipment. To-day we find that cream separators and milking machines are regarded as essential equipment by men who make real money from dairying, and also note that the need of installing clean, strong stalls and stanchions is appreciated by farmers who are building new barns, or remodeling old structures.

Dairy equipment, includes a list of popular leaders; cream separators and milking machines are important business builders, and merit the best attention of every dealer. It is well to remember that haphazard selling methods seldom bring in business. The successful dealer invariably knows the different articles of dairy equipment he handles, and is so conversant with their good points that he can show prospective customers exactly why they cannot afford to dispense with the services of profit-making machines. Considered separately, the articles comprising a modern line of dairy equipment are of special interest and significance. A dairyman cannot succeed without providing comfortable quarters for his cows; this is why it pays to feature the sale of stalls, stanchions, and feed and litter carriers. The man who neglects the comfort and health of his dairy herd will not receive profitable service from a milking machine or a cream separator; this is why experienced dealers make a point of supplying customers with modern stalls and stanchions, as well as devices which lighten the work of keep-

ing a barn sanitary, and distributing feed to the cows.

When a salesman starts out with the view of supplying a certain farmer with dairy equipment, the first move should be made with the view of interesting him in sanitary conveniences for his dairy barn.

Steel stalls and stanchions appeal strongly to practical farmers. The equipment is practically indestructible. When a farmer refuses to buy steel stalls and stanchions, there are many arguments which the leader may advance with the view of assisting the prospect to alter his decision. Inform him that wooden stalls and stanchions are neither safe nor sanitary. They contain cracks and crevices where filth may lodge, and in this way harbor disease germs. When a valuable cow is quartered in a wooden stall, she may suffer serious injury when a board breaks. Wooden stanchions are seldom comfortable, and have little to recommend them when compared with steel stanchions. The best cow the farmer can buy will not produce to her full capacity unless she has comfortable living quarters. Steel stalls and stanchions are a profitable investment, because they do much to keep cows comfortable, permitting them to give a full flow of milk.

Farmers may be advised to equip completely their dairy barns with steel stalls and stanchions. The equipment may include a box stall for calving cows, and calf and bull pens. Heifer calves from good cows will develop into better milk producers if kept in comfortable, clean pens. Calf pens are popular with dairymen who appreciate the need of giving young calves good care. A steel pen for the bull is a guarantee that the bull will not break out at an inopportune time, jeopardizing the lives of children.

A dairy barn must be kept clean; this is why it pays to demonstrate litter carriers to barn owners. The litter carrier sells readily. Considering its low price, it is one of the best investments a farmer can make. It eliminates the hard work of removing refuse with a fork and wheel barrow, as it carries the manure from the barn and dumps it in the spreader. It is easy to keep the barn clean and sanitary after a litter carrier is installed.

Farmers can feed their cows on schedule after installing feed carriers. Since the feeding of balanced rations has become general, the need of more feed carriers is strongly felt.ilage, rations of mixed grain, etc., may be transported quickly from stall to stall with the aid of a feed carrier; this device merits publicity and demonstration.

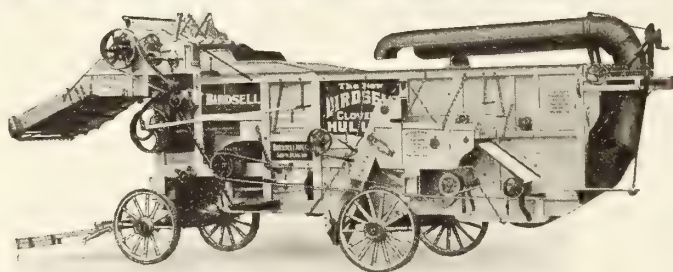
The modern mechanical milker is a success, it is classed as necessary equipment on the dairy farm where up to date methods are the rule. Authorities agree that the dairy industry of to-day needs the mechanical milkers. Numerous tests have been conducted with the view of demonstrating the practical value of the machine. It is safe to recommend a good line of milking machines; for the machine milking does not adversely affect the milk flow. There is nothing to the argument, occasionally advanced by ill-informed persons, that machine milking causes cows to diminish their flow of milk. On the other hand, there are instances where machine milking has caused an increase in the flow of milk.

Machine milking insures economy in labor without lowering the quality or
(Continued on Page 24)

The Birdsell Clover Huller

Since the Year 1855

The World's Best Seed Saver



A Profitable Investment for You

Every owner of a "Birdsell" is satisfied because he can please his patrons and make some money in operating the machine.

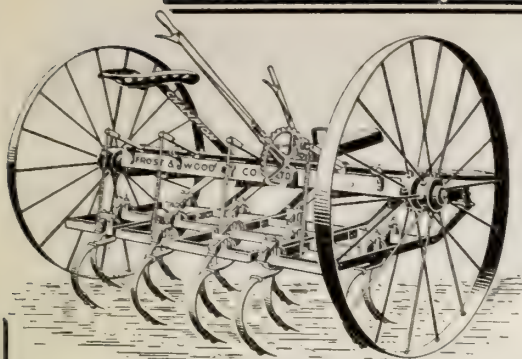
Every Dealer who sells Birdsell goods makes friends thereby. It is a safe line to sell.

**Birdsell-Gehl Silo Fillers
Ann Arbor Hay Presses**

We carry a complete line, also repair parts in stock here in Toronto, and our Travelers cover the territory and assist Dealers where necessary.

When in need of anything in our line, write or telephone us. We are here to help you.

BIRDELL MANUFACTURING CO., Toronto, Canada
Foot of George Street



Bigger Crops for the Farmer and Bigger Sales for You

The unusually fine work done by John Deere Cultivators—Stiff Tooth, J. B. and Steel—mean better crops for the farmer who uses them and a bigger volume of sales for John Deere dealers. Here are John Deere features that are real selling points.

John Deere One-Horse Steel Scufflers

No follow up with a hoe required. Banker attachment can be fitted where higher ridging or hilling is required. Full and one half sweeps. Rear and front gauge wheels. Adjustments quickly made. All steel construction gives great strength.

J. B. CULTIVATOR FEATURES

Practical for all drilled crop rows on level or hilly fields. Tobacco attachment furnished if required. Does good work—rigs are always parallel—shovels always face squarely—all the soil between the rows is worked. Pedal guide enables operator to control rigs easily in dodging. Level lift. Front shovels rise to same height as rear. All shovels penetrate uniformly. All adjustments—for depth, for distance from row, for leveling rigs, etc.—made from seat by means of convenient levers. Two-row attachment can be furnished. Easy to attach or detach; easily controlled.

John Deere Stiff Tooth Cultivators

Wide shovels with big overlap kill all the weeds. Plenty of clearance for soil and trash. Shovels cut evenly at any depth. Every adjustment easily made. Heavy high carbon steel frame gives extra strength. Spring tooth attachment can be supplied.

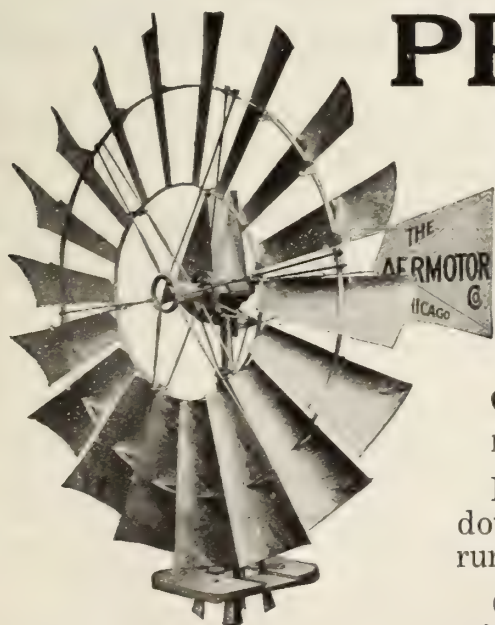
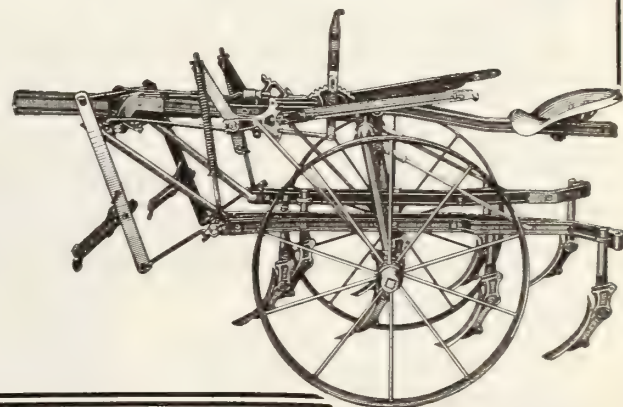
All John Deere implements are quality built. In addition every implement has exclusive features that the farmer is quick to appreciate. That is why it pays to handle the John Deere line. Write us for full particulars.

JOHN DEERE MANUFACTURING COMPANY, LIMITED

WELLAND



ONTARIO



PROFITS Every month of the year SELLING THE Auto-Oiled Aermotor

We believe that more real profit is made from the sale of Aermotors than any other line of farm equipment. The discount to the dealer is liberal and he doesn't have to spend all of his profit in running back to make the outfit satisfactory. The Auto-Oiled Aermotor, when once properly erected, requires no further attention from the dealer.

REMEMBER that the Auto-Oiled Aermotor is the Genuine double-gear, self-oiling windmill, with gears inclosed and running in oil.

Oil it once a year and it is always oiled. After 7 years of use in every part of the world, it has proven its ability to run 2 or 3 years, or even longer, with one oiling and without its ever being necessary for anyone to go on the tower.

The Aermotor gives more service, with less attention, than any other piece of machinery on the farm. The Aermotor is skillfully designed, well made, and backed by a company which has a reputation for doing things right.

If there isn't a live Aermotor dealer in your town, write us today

Aermotor Company, 2500 Roosevelt Road, Chicago, U. S. A.

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This directory will help you with your buying and your planning. The advertisers listed here are thoroughly reliable and leaders in their respective fields. They are looking for live, wide-awake representatives. Study their advertisements carefully because they contain valuable information which will dovetail with your plans. We are glad to go to the trouble of arranging this list—to make it easy for you to select new lines. If it so happens that what you want is not here, write us, and we will tell you where to get it.

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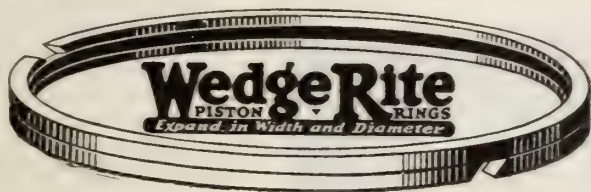
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When You Sell WedgeRite Piston Rings

you sell by far the best piston ring manufactured to date. It expands both ways. The WedgeRite ring does not rotate, but adapts itself to the shape of the cylinder wall thus automatically taking up the wear. The mechanical perfection of this ring appeals to every motorist. The principle is correct.

Manufactured by

The Piston Ring Co. Limited, Montreal

The Penetang Carriage Co., Ltd.

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Sales Office: 742 Yonge St., Toronto

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GASOLINE MOTORS

\$50.00 and up

4 CYLINDER—4 CYCLE

20 horsepower and up, these motors are taken from high-priced automobiles, and can be used for any purpose where power is required. Hundreds of these motors in use all over Canada are giving satisfaction in motor boats, tractors, cutting boxes, sawing wood, running machinery, etc. We also carry the largest stock in Canada of slightly used parts for motor cars of all kinds.

Satisfaction or refund in full, our motto.

Shaw's Auto Salvage Part Supply

927-31 Dufferin Street
TORONTO

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One J. & J. Taylor Safe, inside dimensions 15 inches deep, 2 feet 6 inches wide, three feet, 11½ inches high and fitted with a built-in compartment. Price \$250.00

One J. & J. Taylor Safe 18 inches deep, two feet 9 inches wide, four feet 5 inches high, fitted with a steel compartment. Both safes are in good condition and can be bought at a price that will save considerable money to the purchaser. Price \$200.00. Box 100

BOX 100, MOTOR & TRACTOR, 153 University Ave., Toronto

"Fills Groove
and Cylinder
for the life
of the ring"



"Positive
Expansion
in both
directions"

Pat. Mar. 2, 1915, Feb. 29, 1916

PRESSURE-PROOF PISTON RINGS

TEMPORARILY, yes! 'most any piston ring will overcome oilpumping, poor compression, etc.—but for PERMANENCY there's only one ring to consider, that's the PRESSURE-PROOF.

Put a trial set in the worst performing car you know of—there you'll find PROOF that they're PRESSURE-PROOF, absolutely.

PRESSURE-PROOF Jr. 2-piece and PRESSURE-PROOF 3-piece rings from any of the following:

James Cowan, London, Ont.

Can. Fairbanks-Morse, St. John, N.B.

Rice Lewis, Toronto

J. H. Ashdown Hardware Co., Winnipeg, Calgary, Saskatoon and Edmonton

Lewis Bros., Montreal

C. Kloefer, Toronto

Samuel Trees & Co., Toronto

Manufactured by

PRESSURE-PROOF RINGS, LIMITED

SHERBROOKE

QUE.

Each tire hangs alone—



Make Your Own Tire Racks with Mankey Tire Hangers

and ordinary 1 inch pipe or we will send you a complete Mankey Rack on 15 days' approval

ASK YOUR JOBBER

Hangers \$11.40 per doz. Two doz. Rack \$37.35 f.o.b. Montreal, Toronto, Vancouver, Winnipeg.

MOTOR NECESSITIES COMPANY
SOMERSET BLDG., WINNIPEG

Send one No. 2 Rack for 15 days' examination. I will remit \$37.35 or return the Rack at that time without further obligation.

Name

Address

Dealers, Attention!

Get our propositions on

Portable Saw-Mills,
Gang and Single Edgers
Gasoline and Kerosene
Engines

Emery-Grinders
Water Bowls,
Plow-points, Etc.

GRAY IRON AND BRASS CASTINGS

The Cochrane Foundry & Machine Works

Tillsonburg - Ontario

BROUGHTON'S BLOWOUT BOOTS

(Formerly Steeltire Clasps)



The centre plates are now being made of Cold Rolled Steel. Cuts for Catalogues supplied on request at all good jobbers.



**THE GEO. H. BROUGHTON Co., 126 WELLINGTON ST. W.,
Toronto**



COLUMBIA

"HOT SHOT" BATTERIES

for
**Farm Power,
Tractors
and Starting
Ignition
on Fords**

The minute you connect a new Columbia Hot Shot Dry Battery to your gas engine, you will discover that she is giving you more power. Later you'll learn that you're saving gas.

**A Longer-Lasting Better
Battery for Tractors
and Stationary Engines**

Here's a single, solid dry battery of many cellpower—the sturdiest package of power ever built. No loose connections, no short circuits.

**Canadian Made
for
Canadian Trade**

For easy starting ignition on your Ford, put Columbia Hot Shot No. 1461 under the seat. Saves prolonged cranking—usually ignites the first compression of gas.

**A GOOD
PROPOSITION
FOR DEALERS**

Every dealer in Gas Power Farm Machinery should stock and sell Columbia Dry Batteries. They are recognized the world over as the standard of all dry batteries. Every sale carries a liberal margin of profit for the dealer. Columbia dry cells are sold by all leading jobbers.

CANADIAN NATIONAL CARBON CO. LTD.
MONTREAL TORONTO WINNIPEG VANCOUVER

Columbia

Dry Batteries

—they last longer—

RUSSELL THOMPSON APPOINTED SUPERVISOR OF SALES AND SERVICE

ANNOUNCEMENT is made by the Beaver Truck Corporation of the appointment of Russell Thompson, formerly vice-president and managing director of the Reo Sales Company of Hamilton, as supervisor of Beaver sales and service for central Ontario.

Mr. Thompson's experience in the automotive field dates from 1911 when he first entered the Reo organization. Since then he has been closely associated with the production, servicing and selling of motor trucks. During



RUSSELL THOMPSON

the past three years Mr. Thompson has had the original management of Reo distribution and servicing in the Hamilton district. His long practical experience in the operation and servicing of motor trucks will be of exceptional helpfulness to the Beaver service stations in central Ontario.

Mr. Thompson has developed an improved type of convertible body particularly adapted to the Beaver Bullet Speed Truck for the use of fruit growers and gardeners.

L. H. BLOOM APPOINTED SALES MANAGER FOR HART-PARR CO.

L. H. BLOOM, who has been assistant sales manager for the Hart-Parr Company for the past two years, has been appointed to the position of sales manager to fill the vacancy caused by the resignation of W. S. Fredrickson, who has held that position for the past five years.

Mr. Bloom grew up in the tractor and implement business, having seen field and branch service in many parts of the country. Since coming to the Hart-Parr Company, seven years ago, he has handled sales supervision work both at the factory and in the field, and is thoroughly conversant with all the details of tractor sales work.

W. S. Fredrickson who resigned from the Hart-Parr Company about May first has been with them for the past eight years. For the first three years of that period he was director of sales for the company in Iowa. Five years ago he was promoted to the position of general sales manager and has handled that position with credit ever since. During that period the Hart-Parr sales organization was extended from scattered territories to an international organization.

CANADIAN IMPLEMENTS MENACED BY NEW AUSTRALIAN TARIFF

OTTAWA, May 27.—D. H. Ross, Canadian trade commissioner at Melbourne, has reported to the department of trade and commerce that recent changes in the Australian customs tariff are likely to have a serious effect on Australian purchases of Canadian agricultural implements. Canadian agricultural implements have held a predominant position in the

Australian market. For the year 1920-21, according to Mr. Ross' report, Australia imported Canadian agricultural machinery to the value of \$425,435; agricultural machinery from the United States to the value of \$379,709, and from the United Kingdom to the value of £107,004.

Mr. Ross continues: "On the introduction of the new Commonwealth customs tariff in March, 1921, the immense trade in the importing agricultural implement and machinery trade received the most serious setback it had ever experienced by the imposition of highly protective duties designed to encourage the development of already well-established Australian industries. Some of the duties are admittedly prohibitive and—in expert opinion—there has necessarily been a marked contraction in the value of imported farming machinery after the higher rates of duty became operative. In former years Canadian manufacturers held the larger portion of the trade in farming implements imported into Australia, and it follows as a natural sequence that exports from the Dominion are likely to suffer a serious decline."

Dairy Equipment from a New Angle

(Continued from Page 20)

quantity of milk. Mechanical milkers are in demand because farmers favor equipment which enables them to milk their cows with fewer men, and to increase the size of their herds without hiring extra help. So far as dairy products are concerned, quality is the chief consideration. When used properly a milking machine insures purer milk than is produced by hand milking. This is an important argument in favor of the milking machine.

In every farming community where farmers keep dairy cows there are prospective buyers of milking machines. The best way to sell mechanical milkers is to persistently bring their desirable points to the attention of the farmers. The milking machine can be handled by a careful farmer without causing him trouble or delay. Experienced farm hands are successfully caring for machine milkers. There is nothing to the belief (possessed by some farmers) that an expert is required to milk cows successfully with a machine. The mechanical milker can be used on the farm with the assurance that it will produce milk with satisfactory bacterial counts, will not cause cows to "dry off," and will considerably lessen the work which is necessitated when cows are milked by hand.

The popularity of the cream separator easily places it at the head of the list of articles which comprise a line of dairy equipment. There are numerous dealers who have built up a profitable trade in cream separators, and the methods they employ are worthy of investigation and study. The first essential is to secure the agency for a close-skimming separator. The day has passed when inferior machines could be placed with farmers. After a dealer has the agency for a reliable separator, he should employ every means at his command for informing the farmers in his territory of the fact. Some good separators are extensively advertised in farm journals, etc., and the manufacturers' advertising assists the local dealer in making sales. He will find it advantageous to follow up the manufacturer's advertising with an intensive local publicity campaign. Newspaper ads, posters, distribution of descriptive booklets, etc., are methods used by successful dealers.

The easiest way to get the attention of prospective customers is to explain the inconvenience and loss of butter fat which results when the gravity method of separation is employed. Show them that the saving of butter fat insured by the use of a good separator will eventually pay for the machine, and will permit them to secure the maximum profit from the dairy business.

How Much are You Worth?

In this country we reckon individual wealth in terms of a man's total assets. Jones is worth \$5,000; Smith is worth \$50,000; Brown is worth a million.

In France people estimate their wealth not by reckoning principal but by income—assured income LeBlanc is worth 1,500 francs income a year; Garneau is worth 20,000 francs a year and Daudet is worth 250,000 francs a year.

The French can indeed teach us something. A man is worth only his absolutely safe yearly income, not the value of his securities, business and other assets that fluctuate in value.

Investments should not be reckoned in terms of their par value or even their market value but according to the income they bring. Investments have lost their value

as such when they are not paying dividends or when interest is in default. The investments that will bring in the steady income are the ones you naturally seek. But how difficult it is to choose from among the array of tempting securities offered. So often securities that seemed so promising have proven utterly worthless.

THE FINANCIAL POST analyzes securities for investors. Whether you invest \$500 a year, \$5,000 a year or \$50,000, you need its helpful weekly discussions on investment, business and finance. And you can profitably use its Service for Investors which gives individual advice on your own problems. You, as a subscriber, can ask as many questions as you like concerning your securities. They will be answered thoroughly and promptly.

Build for an assured income. By filling in the coupon subscribe today for the journal that will tell you what you want to know about investing—about your own securities. Over 9,000 leading Canadians are now subscribing for The Post. "I consider it simply invaluable to the investor," wrote one this week. It can be of equal value to you.

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Enter my subscription to THE FINANCIAL POST for one year (52 issues) to start at once. I

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{ Bill me for the annual subscription price, \$5.00

Name

Address

City Prov.

Made of Special Quality Steel

K E  **M P**
Metal Auto **WHEEL**

*Never
Break*



*Never
Warp*

NOTE what the invention of the Kemp Metal Auto Wheel means to the jobber, the dealer and the garage man. The value of this wheel in preventing auto accidents (because other wheels fail to stand the strain often put up to them) is readily recognized. Most car users will demand steel wheels eventually and a tremendous sale will follow in the wake of this demand. The wheels now are big sellers. To be in a position to make the most of a good article you should secure the agency for the Kemp Metal Auto Wheel **now**. At the same time order a set for your own car. Put them to some severe test, a test that would either break or warp other wheels. You will quickly appreciate the advantage of Kemp Steel Wheels.

Kemp Steel Auto Wheels while incomparably stronger and more serviceable than other wheels cost less. (Another good reason for their general adoption). The spokes are firmly held by compression, they are not weakened by having pins, bolts or rivets pass through the ends nor

by threaded ends. In addition they are so mounted as to give considerable resilience to the wheel without rattling or springing the rim or felloe band. The result is a wheel of medium weight, fine appearance, unequalled strength and economy.

Write for our Agency Proposition, now while you are thinking about it

The Kemp Metal Auto Wheel Co., Limited
122 Richmond Street W., Toronto, Ontario

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

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VOL. IV, No. 7

TORONTO, JULY, 1922

Subscription Price
\$2.00 Per Year

Beath Steel Barrels



"All-Welded" Steel Barrel with
"U" Band Rolling Hoops.
See Fig. 3—Catalogue No. 14.



"All-welded" Steel Barrel
with "U" Band Rolling Hoops
Fig. 4, Catalogue No. 14.

There is a Beath Barrel
for every product which
can be shipped in a barrel.

THEIR USE MEANS:

Prestige

for the manufacturer.

Economy

for the distributor.

Satisfaction

for the customer.



"Standard" Steel Barrel with
Expanded Friction Cover.
See Fig. 9—Catalogue No. 14.



"All-welded" Steel Barrel
Hot Dip Galvanized
Fig. 2—Catalogue, No. 14.

A Few Satisfied Users of Beath Steel Barrels

Imperial Oil Co.,
Toronto.
Canadian Oil Companies,
Toronto.
British American Oil Co.,
Toronto and Winnipeg.
McColl Bros., Limited,
Toronto.
Eastern Townships Syrup Co.,
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Dougall Varnish Co.,
Montreal, Que.
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Standard Chemical Co.,
Toronto.
Sun Company of Canada,
Montreal, Que.
Imperial Oil and Varnish Co.,
Toronto.
North Star Oil and Refining Co.,
Winnipeg.
And many others.

W. D. BEATH & SON LIMITED

394 Symington Avenue
Toronto, Ontario

180 St. James Street
Montreal, Quebec

Steel Barrels, Oil and Grease Pumps, Gasoline Storage Tanks

The new Imperial Polarine non-returnable steel drums provide excellent storage for your own purposes. They are also ideal packages for passing oil on to your customers in quantity. Drums are constructed of good quality steel and handsomely painted. They come in three sizes, 15, 30 and 45 gallons.



A Line-up for Sales--

If you haven't lubricating oil storage, we suggest that you line up a battery of the new 45-gallon Imperial Polarine non-returnable steel drums. A suitable rack which can be easily constructed will certainly increase your convenience in handling Imperial Polarine Motor Oils.

Such a display will increase the number and the amount of your oil sales, too. The neatly stencilled drum heads are standing advertisements to your customers that you have all five grades of Imperial Polarine on "tap."

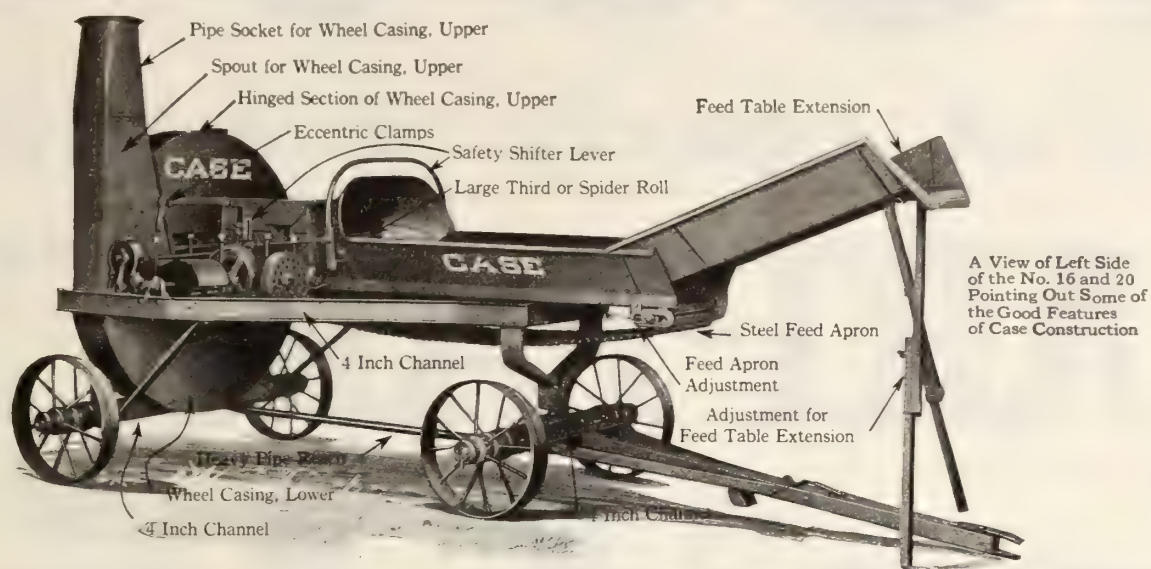
Another suggestion—hang up the Imperial Chart of Recommendations in a prominent place beside this rack and many sales will be automatically made while customers are waiting to be served.

Ask our salesman for your copy of the new Imperial Chart or drop a line to the nearest Imperial Oil Branch and we will see that you are supplied with the Chart and other profitable dealer business-builders.

Don't overlook the sales possibilities of the attractive Imperial Polarine litho-sealed cans in various sizes to meet your customers' needs. Keep a good stock on hand and have a well-arranged display working for you all the time.

IMPERIAL OIL LIMITED

*Canadian Company—Canadian Capital
Canadian Workmen*



New Business

WITH new silos going up in every direction, and less than half of the present silo owners filling their own silos, the market for Case silo fillers offers an unusual opportunity for dealers.

Farmers have not realized fully the advantage of being able to fill their silos at the right time, and to fill them completely. They are rapidly coming to understand and appreciate those advantages, and they are buying Case silo fillers because:

There is a size to meet every requirement.

They can be operated by farm tractors and engines.

They have great capacity and will fill any silo in the short time when the corn is at its best.

They can be set and fed rapidly.

They cut uniform lengths. Case-cut silage packs and keeps well.

They can be used for neighborhood jobs, bringing in cash returns.

They can be transported easily and safely.

They are safe to handle and operate.

They last for years.

There are few machines that pay a farmer better than a silo filler and, at this time of year, their sale offers progressive dealers a profitable business opportunity.

We have new and better selling arrangements on silo fillers to offer progressive dealers.

Write today for particulars.

J. I. CASE THRESHING MACHINE COMPANY

(Established 1842)

Dept. V216

Racine

Wisconsin

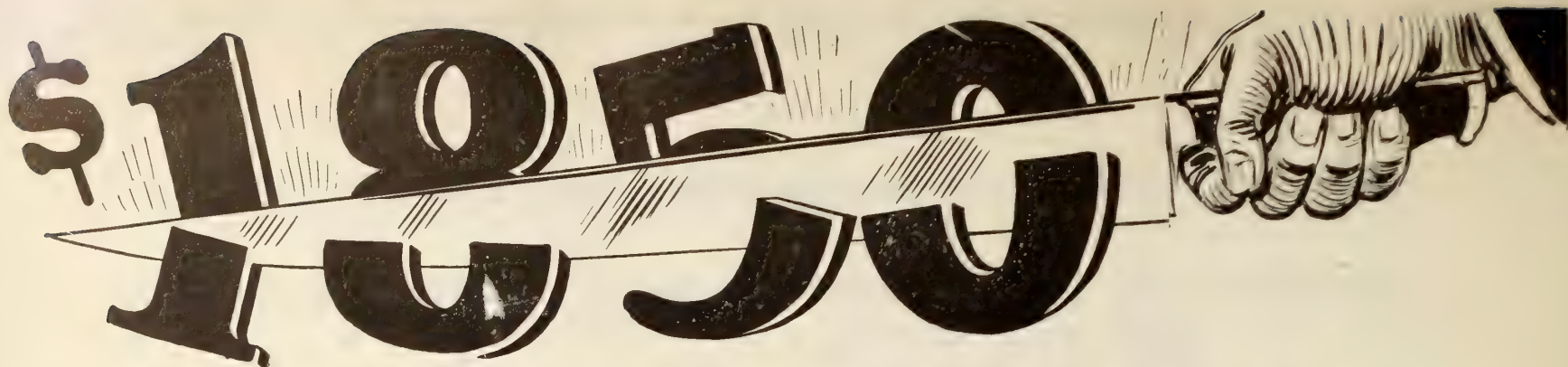
NOTE:—Our plows and harrows are NOT the Case plows and harrows made by the J. I. Case Plow Works Co.

Factory Branch: Toronto, Ontario.



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TRADE MARK REG. U.S. PAT. OFF. AND IN FOREIGN COUNTRIES.
POWER FARMING MACHINERY





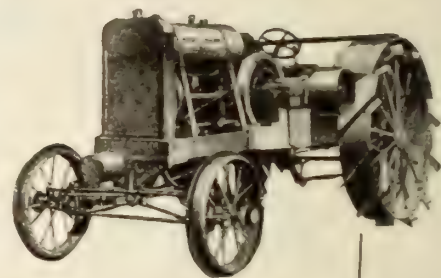
Cut nearly one-third

HART-PARR "30"

NOW \$1250

F. O. B. WINNIPEG

The rush is on—our announcement of a \$600 cut in price on the Hart-Parr "30" certainly created a real sensation in the tractor world. Hundreds of farmers who have been waiting for just this opportunity fairly flooded dealers with orders. The extraordinary value of the Hart-Parr "30" is so well-known that the price reduction announcement more than tripled sales within a week. It is only what we expected. The Hart-Parr "30", priced at \$1,250, gives the Canadian farmer the cheapest power in the world.



Remember, the new price is on the same identical tractor, with many improvements, that has so often won the leading power and economy tests throughout the country.

Our New Contract Assures Your Profits

It gives sufficient territory, to secure volume sales, which means worthwhile profit; it provides substantial sales and advertising co-operation. The Hart-Parr dealer has a tractor without a peer, priced at a figure which outdistances all competition. There is still some choice territory open. If you want to get in on a good thing, write or wire to-day for our money-making proposition.

Distributed in Canada by

Hart-Parr Company, Branch, Regina, Sask.; John Goodison Thresher Co., Sarnia, Ont.; United Engine & Threshers, Calgary, Alta.; Barney Baker Company, Ltd., Re-

gina, Sask.; Barney Baker Company, Ltd., Winnipeg, Man.

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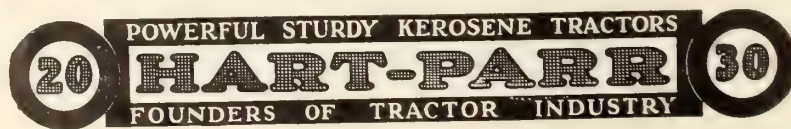
HART-PARR COMPANY

Founders of the Tractor Industry

528 Lawler Street

Charles City, Iowa

Our advertising to the farmer, now appearing in leading farm papers, is producing splendid results. Our dealers get the benefit of the advertising through the many live, workable leads we give them.



Many of the old Hart-Parrs that plowed the virgin prairies of the Northwest are still in use today. The great grand-daddy of all Tractors was old Hart-Parr No. 1, built in 1901.

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

Volume 4

TORONTO, JULY, 1922

Number 7

A.E.A. Votes \$60,000 to Promote Sales

"Ask 'em to Buy" Campaign Inaugurated Last Year Supplemented with "Shop Profits"
Plan in which Shop Equipment Men have Lined Up with Manufacturers, Jobbers and Dealers of Automotive Equipment. Convention at Colorado Springs
Enthusiastic Over Results to Date from the Past Year's Campaign.

EVIDENCE of the success of the "Ask 'em to buy" campaign, inaugurated by the Automotive Equipment Association at Mackinac Island, Mich., a year ago, when \$40,000 was appropriated for sales promotion among the manufacturers, jobbers and dealers, of automotive equipment, was amply forthcoming at the annual summer convention of the Association held at Colorado Springs last month. Not only were the members satisfied that the scheme was right, they enthusiastically voted for its continuance with an appropriation of \$60,000 as against the \$40,000 provided for the first year.

The convention's endorsement of the merchandising movement was unanimous. The individual members were so strong for its continuance and development that a proposal to take part of the campaign fund from the association treasury was voted down and the entire amount was assessed against the membership at \$125 each.

Adding to the Campaign

The "Ask 'em to buy" work will be supplemented this year with a campaign centered on profits in the shop, by better repair shop management and equipment. Dealers and garagemen who have added to their profits by practising "Ask 'em to buy" ideas, will be offered assistance also in time saving and money saving methods in the shop. The campaign story will be told to the trade by means of literature and meetings with speakers, and motion pictures will be carried on as throughout the past year, with the exception that there will be two films instead of one and, according to indications at the convention, more manufacturers and jobbers will co-operate in the campaign, thus carrying the story more rapidly and more generally throughout the country.

Large Increase in Sales

The increase in sales so far attributable to the merchandising campaign has been estimated at upwards of \$1,000,000. No one knows how accurate this may be, but reports by numerous jobbers who have campaigned in their territories left no doubt of the practical value of the work by which the retail trade, as well as manufacturers and jobbers have profited. The most illuminating feature of the meeting was the large number of reports of dealers and garagemen whose equipment profits had been doubled, trebled, quadrupled, and in some cases built up from nothing to substantial figures by following the suggestion to "Ask 'em to buy."

Shop Profits

And now begins the "Shop Profits" phase of the work, in which the equipment men have lined up with progressive car and truck manufacturers, distributors, dealers and garagemen in an effort to promote throughout the entire industry better work in the shop which will add to the satisfaction of the car and

truck user and to the stability and profit of the industry in sales as well as service. Another public service work of the convention was approval of continuation of the standardization work, intended to eliminate waste in unnecessary multiplication of sizes and styles of merchandise and to bring about uniformity of packing, labeling and shipping in the interest alike of the consumer and the wholesale and retail trade.

Some 28 new members were elected by the association, 20 of whom were manufacturers. The previous decision to restrict attendance at the annual business exhibit in November to members was approved by the association. It was also decided to make Chicago the permanent location of the annual convention and exhibit.

Commissioner W. M. Webster presided at the convention, with President Howard M. Dine supporting him. Committees worked hard and some new ones

were appointed, including the Business Exhibit Committee, composed of S. A. Fulton, of the Fulton Co., Milwaukee; W. L. Moncur, of Cutten and Foster, Ltd., Toronto, Ont.; W. C. Hecker, of the Curtis Pneumatic Machinery Co., St. Louis; E. V. Hennecke, of the Moto-Meter Co., Long Island City, and C. F. Hodgson, of the Weaver Mfg. Co., Springfield, Ill.

W. T. Walker, of the Walker Mfg. Co., Racine, Wis., representing the shop equipment interests, and W. E. Wissler, of the Herring Motor Co., Des Moines, jobber, were added to the merchandising committee. Frank T. Chase, of the Frank Mossberg Co., Attleboro, Mass., was added to the universal catalog committee.

A sum of \$250 was voted to the Vigilance Committee of the Associated Advertising Clubs of the World, in the interest of honest advertising.

The merchandising campaign, as authorized for the coming year, includes the "Ask 'em to buy" prop-

Board of Directors Automotive Equipment Association



Lower row, left to right—G. Norman Baughman, G. Norman Baughman & Co., Tampa, Fla.; W. L. Moncur, Cutten & Foster, Ltd., Toronto; A. D. McMullen, Motor Mercantile Co., Salt Lake City. Center row—Charles C. Gates, Gates Rubber Co., Denver; William M. Webster, Commissioner A. E. A.; Howard M. Dine, Dine-DeWees Co., Canton, Ohio; W. E. Wissler, Herring Motor Co., Des Moines, Iowa; William Von Elm, formerly of E. A. Laboratories, Inc., New York. Upper row—C. F. Hodgson, Weaver Mfg. Co., Springfield, Ill.; D. A. McConnell, Klaxon Co., Newark, N. J.; S. D. Black, Black & Decker Mfg. Co., Baltimore, Md.; Earl V. Hennecke, Moto-Meter Co., Inc., Long Island City, N. Y.; W. H. Parkin, National Standard Co., Niles, Mich.; C. Robert Churchill, Electric Appliance Co., New Orleans; S. A. Fulton, The Fulton Co., Milwaukee; B. L. Clements, Borderland Auto Supply Co., El Paso, Tex.; W. C. Hecker, Curtis Pneumatic Machinery Co., St. Louis.

agenda as well as the new "Shop Profits" feature, in addition to the showing of the Shop Profits film.

A 32-page "Shop Profits" book will be distributed to dealers and garagemen all over the United States and Canada. The "Ask 'em to buy" film will continue its rounds and the book brought out last year, "A Greater Business," also will be continued in circulation.

The "Shop Profits" film, was received by the convention with great enthusiasm. The film like its predecessor, filled with human interest as well as practical business ideas holds up uncharged materials, lost tools, wasted time and uncollected bills as arch enemies of the shop operator and suggests shop system, "Ask 'em to buy" and "Ask 'em to pay."

Ray W. Sherman, merchandising director, gave an address, after which the new film was shown. Mr. Sherman, who was introduced by Robert A. Stranahan, former president of the association and chairman of the merchandising committee, directed the preparation of the film.

One of the most interesting hours of the convention was that devoted to jobbers' stories of their experiences with the merchandising movement so far. All the stories and testimonials showed that the campaign is doing its best work by presenting to retailers a story they want to hear. A story of more business and more profits for themselves.

Summarizing the jobbers' reports, Merchandising Director Sherman stated that more than 65,000 people, attending 586 meetings, had heard the merchandising story and a majority had seen the "Ask 'em to buy" film in the ten months of the campaign.

The delegates and guests came to the convention on three special trains starting from New York, Chicago and St. Louis, and on numerous regular trains from all sections of the United States and Canada.

Business is Bright

The convention undoubtedly would have had a larger official registration but for the lively season prevailing in all parts of the United States and Canada. Manufacturer members almost unanimously reported a heavy volume of business for May and June, with indications of its continuance through the summer. Jobbers are having their best season since the spring of 1920 in most sections. Replacement items for cars and trucks have been bought in heavy volume all spring and shop equipment, including both machinery and hand tools, is moving briskly. A good deal of shop equipment has been sold to dealers and garagemen on six months' credit, or longer.

The class of automotive equipment popularly known as accessories has had a strong demand from the wholesale and retail trade, with exceptions. The exceptions are items of the luxury or fad type. Useful, high class car equipment is having a thoroughly satisfactory season, but goods of doubtful utility and uncertain quality have not responded well to sales promotion efforts. As a result stocks of such goods, unquestionably smaller than they were a year or two ago, are not moving well either from jobbers' or dealers' shelves and consequently are not being purchased from manufacturers.

Twenty manufacturers and eight jobbers were elected to membership, out of a large number of ap-

plicants. This brings the membership almost to 500. The new members follow:

Manufacturers

Ajax Auto Parts Co., Racine, Wis.
Armstrong Cork Co., Pittsburgh, Pa.
Barber Asphalt Co., Philadelphia, Pa.
Borg & Beck Co., Chicago, Ill.
Buckeye Brass & Mfg. Co., Cleveland, Ohio.
Duluth Show Case Co., Duluth, Minn.
Franklin Machine & Tool Co., Springfield, Mass.
Fibre Finishing Co., Boston, Mass.
W. D. Foreman, Chicago, Ill.
Hayes Wheel Co., Jackson, Mich.
The Ironsides Co., Columbus, Ohio.
Lake Erie Metal Products Co., Cleveland, Ohio.
William E. Pratt Mfg. Co., Chicago, Ill.
Rollaway Motor Co., Toledo, Ohio.
Rossendale Reddaway Belting & Hose Co., New York, N.Y.

South Bend Lathe Works, South Bend, Ind.
The Stone Manufacturing Co., Chicago, Ill.
Thompson-Neaylon Mfg. Co., Chicago, Ill.
United States Asbestos Co., Lancaster, Pa.
White Brass Castings Co., Chicago, Ill.

Jobbers

Fort Wayne Iron Store Co., Fort Wayne, Ind.
Motor Accessories Co., Philadelphia, Pa.
Motor Car Supply Co., Charleston, W. Va.
A. Stamler, Inc., Elizabeth, N. J.
Supplee-Biddle Hdwe. Co., Philadelphia, Pa.
Tenk Hardware Co., Quincy, Ill.
Watkins & Radcliffe Co., Detroit, Mich.
Weaver Ebling Automobile Co., New York, N.Y.

Saskatchewan Dealers' Trade Problems

Automotive Section of Saskatchewan R. M. A. Held a Separate Session at the Annual Convention in Regina, When Many Points of Vital Interest Were Brought Up

ARRANGEMENTS were made for a division into trade sessions of the annual convention of the Saskatchewan R. M. A. for the purpose of discussing the problems peculiar to the different trade sections. The meeting of the automotive section was held on June 7th, at 10 a.m. In the absence of W. J. Ward, chairman of the section, T. H. Masterson, Regina, presided. The secretary, H. T. Pizzey, reported to the meeting on the efforts and accomplishments during the past year.

The secretary, H. T. Pizzey, made his report in part as follows:

Once again we meet in convention in an endeavor to guide the destinies of the various businesses we are engaged in, by giving voice to any suggestions and constructive criticisms that have come to light by our experiences since we last met.

The membership of the Automotive Trade Section on April 20th, 1922, was 275, an increase of 27 over that of June, 1921, made up of 102 dealers in automobiles alone, (the most of them having garages attached) 61 handling automobiles and implements and 109 handling autos in addition to their main line of business, other than implements. There are, of course, a large number of hardware merchants who are members, who handle tires and accessories, but these are not included in the above figures. This membership, in view of the increased fee and the condition of finances throughout the country is very creditable and we hope to increase it to over the 300 mark before the end of the year. The membership of the Implement and Automotive Trade Section is 469 or approximately one fourth of the Provincial membership.

The annual convention of the Automotive Trade Section, which was set to take place in Moose Jaw last January, was postponed, as your committee could not conceive that there would be anything but a small attendance owing to the lethargy into which the automobile trade sank during the winter months and the then financial condition of the country generally. It will be for you to say when the convention will be held next.

At the convention held on January 26th and 27th in 1921, a resolution was passed asking the provincial government to enact legislation conveying to garage owners a preferential lien for repair work done on automobiles, where the repaired car had left his possession without the bill being satisfied—the Mechanic's Lien Act already permitted same where possession is retained. On the government stating that such legislation was impossible and would be dangerous to the whole basis of the Chattel Mortgage Act, the committee took the matter under consideration and arrived at the following report:

"The association solicitors advise us that it would not be possible under the present status of the Act to draw up such document which would be binding against a third party, thereby making it necessary that we ask amending legislation to attain the end desired.

"Your committee found that if such change was effected, it would be very detrimental to the sale of new cars on a deferred payment basis, and as a goodly number of garage men deal in automobiles, it was thought that any good derived from that change would not counter-balance

the obstacles added to other than cash sales of new and used cars.

"Such changes would place the dealer in a very awkward position, as not only would the business of trading in used cars be made more shaky, but in the event of being forced to repossess a car sold on account of non-payment, prior liens for repair work and parts would, in the great majority of cases, place the original vendor in the position that he would be forced to lose his equity in such cars.

"Again, where a car was sold on the deferred payment basis, it could never be definitely ascertained what liens were existing as work might have been done at a dozen different garages and not paid for. This would particularly apply where cheap cars (used) were sold on terms of half cash or less, and had since had expensive overhaul at some other establishment.

"In any case the repairman at the present time is fairly well protected, for he obtains a prior lien on the car provided that he retains possession of it for three months after the work is completed and the account remains unsettled. By complying with the provisions of the Act as to advertising, the car may be auctioned and the bill satisfied from the proceeds.

"Your committee also consider that a garageman should and can carry on his business on a cash basis, thereby coming to the conclusion that the association should take no action on the matter. Respectfully submitted."

However, it was felt that if at all possible some means of preserving the lien should be found and after a considerable study of the question it was decided to draw up a short Chattel Mortgage Form, so that a mortgage could be taken where the owner could not pay the repair bill and wanted possession of the auto. This was done and a supply is kept on hand at the Provincial Office and are supplied on request at the nominal sum of 25 cents per dozen. A large number of dealers are already using these forms and our organizers are equipped with samples.

It was decided also to ask the government to instal a card index system in the Motor License Department, giving in order, owner's name and address, make of car and license number, in order to expedite the tracing of stolen cars. This was taken up by correspondence and at a meeting of the Provincial Executive and the Provincial Government on October 11th, 1921, by Mr. Masterson. Mr. Dunning in answer said that he would like to have left with them a sample card index prepared by the automotive section for further consideration. An Order in Council was passed on April 11th, 1922, permitting the provincial secretary to secure additional information when license was being requested and the new application form covers the information desired by the committee.

The convention also passed a resolution requesting the government to amend the Act respecting lien notes, requiring that in respect to the sale of automobiles, the serial number, engine number, make of car, as well as the name of the vendor and purchaser, be embodied in the contract form; further that the officer where registration takes place be required to forward particulars to all registration offices within the province. Mr. Masterson, in sponsoring this request, explained the reason for it, but was told this was an old question formerly suggested in connection with sale of horses and the government could see no hope of being able to comply with the request on account of the work and expense involved, particularly in

view of the fact that when a note was paid, the procedure would have to be done over again.

The tire question relative to dealers who persistently refuse to maintain the manufacturers' prices and that of discounts was referred to our Dominion office and discounts have now been restored. The former item is still receiving the attention of the Dominion office with no particular progress as yet.

The resolution asking that interim licenses be granted to enable a purchaser to drive his car away without breaking the law until such time as his official license came along was taken up by Mr. Masterson and I have the following report to make:

"Following the passing of a resolution asking the government to amend the Vehicles Act to allow automobile dealers to issue 48-hour interim licenses to purchasers of new and used cars so that they could operate them without breaking the regulation while awaiting the arrival of their regular licenses, the entire subject has been placed before the Cabinet by correspondence, and at the meeting which the provincial executive held with them on November 11th last, T. H. Masterson, chairman of the Automotive Trade Section, brought the matter up."

As a result of the representations made the government undertook to see if something could be done to meet the situation, although they considered the resolution impracticable owing to what appeared to be unnecessary duplication of work entailed, taking into consideration the limited number of sales that would be effected.

It was pointed out that since the matter was first brought before the government a number of additional appointments had been made so that at this time licenses can be secured from 41 cities and towns in the province. These are well enough scattered as to have the result desired by the convention when passing the resolution last January, as a glance below will show:

The local registrars of the judicial districts are at:		
Arcola	Kindersley	Saskatoon
Estevan	Melfort	Shaunavon
Battleford	Melville	Swift Current
Gravelbourg	Moose Jaw	Weyburn
Humboldt	Mosomin	Wilkie
Kerrobert	Prince Albert	Wynyard
	Yorkton	

The Provincial Police at:		
Assiniboia	Kamsack	Preeceville
Canora	Kipling	Punnichy
Conquest	Lanigan	Radville
Elbow	Leader	Riverhurst
Elrose	Lloydminster	Rostown
Esterhazy	Maple Creek	Rosthern
Hatfield	North Battleford	Strasbourg
	Wakaw	

The matter of dealing in used cars was left to the committee, who thanks to the valuable assistance of Gen. Tuxford, proprietor of the Canadian Garage at Moose Jaw, arrived at a schedule of allowances and a circular was sent to the trade inviting their co-operation by putting the schedule into effect. This subject will again receive your attention during the present meeting.

In conclusion I wish to thank personally the committee for their prompt assistance in dealing with matters coming up from time to time, which greatly accelerated progress.

After the secretary's report was read and approved the matter of insufficient discounts on automobiles and parts was debated at length and it was finally moved by C. Alexander, seconded by J. Grest:

"That the Dominion Board urge upon manufacturers of motor vehicles the necessity for increased minimum discounts on automobiles and parts."

Tire Question

Distribution of tires, etc., was next considered and it was decided to support the plan put forward by Dominion Secretary Trowern, on Sept. 23rd, 1921, and it was accordingly moved by J. W. Funk, seconded by S. J. Smith:

"That the Dominion secretary be asked to draw up the letter mentioned in the minutes of the meeting of Sept. 23rd, 1921, and the utmost attention given to the matter of tire distribution, as it is a vital one to the trade."

The meeting expressed themselves as strenuously opposed to tire manufacturers selling to other than legitimate dealers. Several present stated cases of where a company's salesman sold the dealers in a town and then sold car owners at the same price. In another case the salesman was unable to place an order with the dealers in a town as they were already

overstocked and he turned around and sold car owners at slight cuts from ordinary retail prices.

Each speaker said he had since refused to buy from the offending firm, and had also told the facts to the other merchants in his home town, with a result that it was useless for their traveller to visit that place. The chairman said it seemed poor policy on the part of the companies as they were "cutting their own throats."

The New Tax

The new tax as imposed by the Budget was next discoursed on. The secretary explained the attitude already adopted by the committee, that there was no reason why automobiles should be singled out for a tax of this kind and in any event such tax should be uniform regardless of value. He said it had also been suggested that provision be made in the Budget for inventorying cars on hand any time the tax might be lifted and the dealer refunded without any request.

Meeting adjourned for lunch to meet again at 2 p.m.

Price Guarantees

Rather an animated discussion took place at the afternoon session on the subject of "price guarantees." The delegates were unanimously of the opin-

ion that automobile manufacturers should guarantee prices. Some felt that this guarantee should extend to demonstrating cars in the dealers' hands. It was accordingly moved by Appleton, seconded by Glover:

"That the Automotive Section for the Sask. Branch of the Retail Merchants' Association Inc. go on record as urging the manufacturers to insert a clause in the contracts offered to the dealers, guaranteeing the price of new and unused automobiles against a drop at all times."

It was felt by the meeting that the matter of refund of Luxury Taxes paid on cars on hand Dec. 20th, 1920, was not pushed energetically enough by the Dominion Office and it was moved by Alexander, seconded by Appleton:

"That the Dominion Board be urged to redouble its efforts to secure a refund of the Luxury Tax put on automobiles in the dealers' hands on Dec. 20th, 1920, and further, make immediate arrangements to have legislation introduced in the Dominion House to provide for it."

The following officers were elected for 1922-1923: Chairman, T. H. Masterson, Regina; First Vice-Chairman, J. Grest, Watrous; Second Vice-Chairman, C. Alexander, Moose Jaw; Treasurer, S. J. Smith, Gull Lake; Hon. Secretary, M. J. Ward, Saskatoon.

Tractors Sold Too Much on Basis of Profit and Loss

By G. H. WOOLLEY, JR.
Hyatt Roller Bearing Company

WHILE GAZING from a railway car window has it never occurred to you as being peculiar the comparatively few farm tractors you see? If we did not know that thousands of tractors, according to Government statistics, were operating successfully for the farmer, we would almost begin to doubt the reality of this machine. We know that there have been a great many tractors sold, but I believe only a very small number of what could have been sold, and a very small number of what would have been sold if the real value of operating a tractor had been emphasized to the farmer.

Tractors have been sold too much on a basis of profit and loss. While it is true that a tractor must show a profit in dollars and cents for power farming to live, it would seem that not enough stress has been laid upon the intangible value, the unrealized value, a value that is not altogether based upon dollars and cents—a value that is not measured in furrows turned or acres seeded, but is based upon certain facts which indirectly are as valuable, if not more so, than the actual monetary gain.

Why did the farmer accept the binder or a plow made from cast iron? Was it of their own free will and accord, with no effort on the part of the manufacturer? It was not. It was only after the scarcity of farm labor, due to the migration to the gold field, had become keenly felt that the farmer was at last driven to the use of the binder for his very self preservation. Even with the plow, the very basic farm implement, it took years of work along educational lines before the prejudice held against the iron plow was at last overcome, and it came into general use. Once started, however, in the use of these implements, the farmer was not long in recognizing their wonderful advantages. The iron plow enabled him to turn more furrows per hour with better results, and at the same time with easier handling. The binder not only enabled him to cut and tie the grain with one operation, but it enabled him to increase his acreage at the same time taking the drudgery out of the harvest.

The world war took the place of the gold rush days of old to teach the farmer, in a part, the value of power farming. There is still work to do and a lot of it before we can expect tractor farming to become universally accepted. Not taking into consideration the monetary value of a tractor, isn't there an element of satisfaction in driving a tractor that is not experienced when driving horses? When your day's work of plowing is finished you are through for the day which would not be the case when using horses, for after a hard day's work in the field you still have a lot of work left to do in caring for the animals.

Boys on the farm are the farmers' most valuable assets, and if the boys leave the farm for other kinds of work, then the country, as a whole, will suffer. Boys bred in the city do not, as a rule, make success-

ful farmers. Therefore, it is more than essential that the younger generation be given something to make life interesting for them outside of their usual farm duties. Generally boys raised on the farm are interested in things mechanical as well as in nature. If they switch the interest they take in horses to tractors, then the tractor will receive proper care. The affection they have for horses will, in time, be given to some other farm animal, which will perhaps be more productive to the farmer than his horse. At the same time the boys will be better satisfied and contented. Is this not a real value derived from the ownership of a tractor?

Farm work is not only hard work for man, but also for animals. Is there any pleasure in driving horses badly galled—yet it is very hard to keep them from becoming so under the rush and stress of farm work. There are repair parts to be bought for the horse as well as the tractor, harness must be replaced, veterinary bills to be paid and these bills would be several hundred per cent. higher if the horses were obliged to work fifty per cent. as hard as the tractor will successfully work. Hot weather means nothing to a tractor, flies do not bother it. No time need be wasted to rest it at frequent intervals during the day. Isn't there a value in the satisfaction of knowing this? No man enjoys working horses that are not in perfect condition and horses will go lame at times from no apparent reason at all. Their shoulders become a mass of open sores, continually irritated by the rubbing of their collars and infected with flies, and they are a source of continuous care throughout the season. Their tendons become strained, not only causing discomfort, but also decreasing their efficiency. A number of other ailments, which horses are subject to, are apt to appear at any time and often it is necessary to work horses during the rush season when to do so almost seems inhuman. Anything may happen to a tractor—a rear axle break, a wheel drop off, but isn't it a satisfaction to know that no matter what may happen no real suffering is being inflicted upon it as would be the case in dumb hearts? A broken axle on a tractor can be replaced. A broken leg on a horse means a total loss of that horse. An over-heated motor can be cooled off, whereas an over-heated horse is about one-half as efficient thereafter, if he lives. Any worn out part on a tractor can be replaced. It is impossible to replace new teeth or install a new heart in a horse. With the tractor it's a question of a little care, the feeding it of gas and oil and it will out-last its guarantee every time. There are farmers to-day who are operating their first tractor successfully and this after ten years of continuous work.

The farmer is the biggest gambler in the world. He

is playing a game more uncertain than roulette. He gambles with the weather, bugs and disease. He can fight against bugs, guard against disease; he must have the time to do so though, but against bad weather he is helpless. There is only one way he can beat the weather and that is through speed. He must be equipped to do a maximum amount of work in a short period of time. Speed of times spells the difference between success in obtaining a crop or failure.

Many years the springs have been so wet that only a very few working days were had in April, and it is generally admitted that the month of April is just about the busiest spring month there is on the farm. I know in certain sections of the country just a few years ago where there were but two working days in April. Just think of that; only two days in which a farmer could work on his land in preparing a seed bed. Work which should be finished in April will only be started in May. There is a limit to the lateness in which grain can be sown and ripe grain harvested. When the tractor is used there is the satisfaction of knowing that when nature does get around to give the farmer an opportunity to get in his grain the work can go rapidly forward and what is going to count more than anything else is speed, and I don't think there is any argument against the tractor not being able to accomplish more work in ten hours than the number of horses which it replaces. I am, of course, taking it for granted that the tractor is in good working condition and kept that way, and there is no reason why it should not be, providing a little time is given to the care of it.

They tell me that tractors are being bought now to meet the emergency caused by a wet spring. The value of a tractor would be to get the work done before the rains commence, or to be able to get it done quickly after the rains cease, thereby eliminating the constant worry brought about by such emergencies.

I don't want to get all tangled up in figures trying to prove the value of a tractor, but I just want to cite one example:

It cannot but be admitted, even by the most ardent supporters of the horse, that a three-plow tractor will successfully do the work of three horses. It is also fair to assume that it takes at least four acres of land to support one horse for one year. Therefore, the crops from twelve acres of land, when using a tractor, assuming that only three horses are replaced by it, becomes available for market. These crops can be sold either as grain, hay or as a finished product, such as beef, pork or dairy products, depending upon the nature of the farm. There are farmers who are successfully keeping one cow for every acre under cultivation. Supposing, however, it takes the feed from 3 acres to support one cow, then by eliminating three horses there will be feed for four cows. The average profit obtained from a good grade cow should be \$100 per year. Four times \$100 is \$400. Is there

(Continued on page 6)

Thousands of Tourists Need Equipment

What Does the Summer Tourist Trade Mean to You? Some Dealers Have Cultivated This Business and Increased Their Profits Accordingly. This Story Gives Some Practical Suggestions and Hints From the Experiences of Other Dealers in Building Up This Type of Trade

PRACTICALLY every highway in Canada for the next three months will be crowded with tourists from the four points of the compass. This is the time of the year when the lure of the open road has an irresistible appeal to motorists.

Each year sees this traffic growing and localities turning their thoughts more and more to its commercial possibilities. Motor camps for the accommodation of tourists are being established, but not in anything like the numbers the traffic would seem to demand. Activity in this connection is noticeable in Ontario and British Columbia. There are at least four camps in Ontario where motorists can pitch their tents and be accommodated with hot and cold water free of charge.

According to figures furnished by the Department of Customs over 93,300 cars entered Canada during the calendar year of 1920. Of these 1,800 registered for more than one month and 91,500 for a shorter period. Allowing an average expenditure of \$15 per day, including gasoline and garage charges, etc., for the first class of car and an average length of stay of thirty days, this traffic amounted to \$810,000 while the second class of car, on a basis of an estimated expenditure of \$25 per day for seven days, was \$16,000,000, or \$16,810,000 in all. That is, the motor highways of Canada brought in during 1920 a foreign revenue equal to the above sum.

And Canada's resources in this respect have only begun to be developed. American citizens are finding in our great country a playground with unlimited possibilities.

Over and above the foreign tourists, thousands of Canadians take to the highways in search of pleasure, health and recreation. They motor north, south, east and west, for a radius of hundreds of miles and wherever they go they buy from somebody and somebody sells to them.

What It Means to the Dealer

What does all this mean to the automotive dealer? It may mean much or little, according to the dealer's own attitude. Some dealers have recognized the business potentialities of this tourist traffic and have increased their profits accordingly. But the vast majority are still overlooking this trade and conducting their businesses as if it didn't exist. True, they sell the odd spark plug to the transient motorist but it finishes at that.

The garage situated on a popular and main highway has a strategic advantage over the garage on a street less frequented by motorists. A good location is of great importance and simplifies the problem of the dealer desirous of catering to tourists, but the dealer on the side street can do a great deal to put his service on the main highway and attract his share of the business.

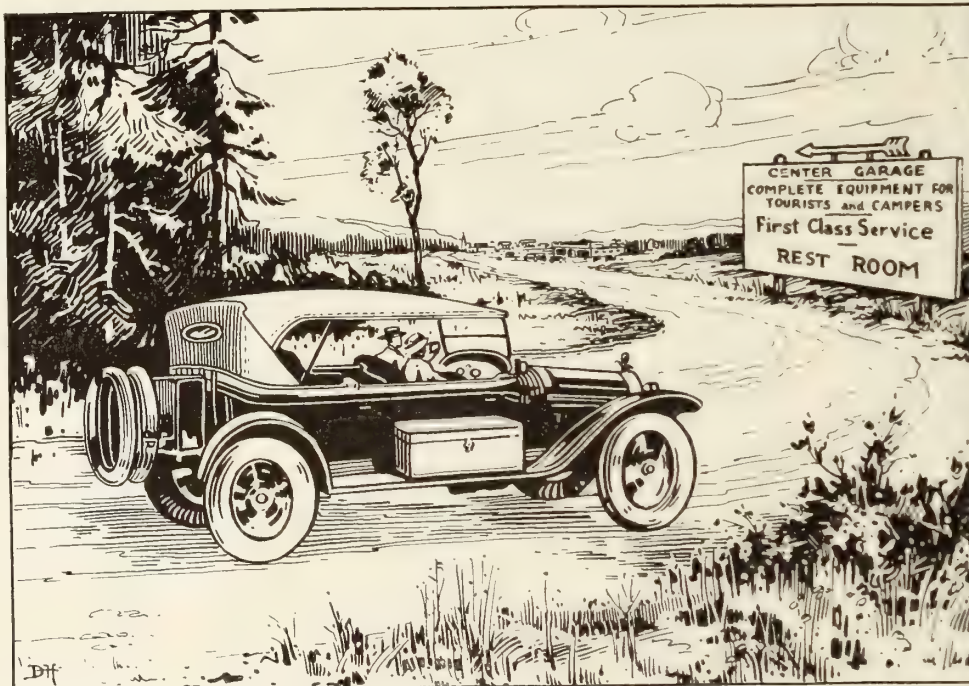
The first thing the dealer must do is to give the best possible service, charge fair prices and in every way do all he can to create confidence in his establishment in the minds of the motoring public. Some dealers have made a practice of overcharging tourists and think it does them no harm. But they forget that tourists are clubby people who like to foregather at the crossings and small villages to talk things over. In exchanging experiences of roads, hills, detours, etc., they are not likely to forget to mention the garageman who charged too much for that little adjustment to the carburetor, or for putting in a new supply of oil, etc. You can bet when the other fellow passes through that garage man's town, he is not likely to buy the spare tire or extra spark plugs from the man who has the reputation of overcharging.

The dealer must have some means of making it known to his public that he is a merchandiser of all

the automotive equipment needed by tourists and campers. He can do this by window displays, newspaper advertising, road signs, and by letter. He can arouse interest among his local car owners in motor

The tourist trade has grown to such proportions that no dealer can afford to ignore it. If the dealer is sincere in his dealings with the tourist and does all he can to serve him, advertises and merchandises his goods properly, this should be his biggest year in automotive equipment sales.

touring by letters and post cards pointing out the advantages of camping and a holiday on wheels, and offering to help in the preparation of trips. He can also attract the foreign motorist to his town by urging the local authorities to establish a camp-site where hot and cold water, free firewood, police protection, etc., would be provided. Once the dealer arouses his local motorists to the advantages of camp-



The dealer must have some means of making it known to his public that he is a merchandiser of all equipment needed by tourists and campers. Road signs at the main approach to the town have been used with good effect by dealers who cultivate this trade.

ing and motor touring, and persuades his townsfolk to establish a camping ground, a large field for automotive equipment sales has been opened up.

If it is possible the dealer should arrange to install a rest room with washing facilities and advertise the fact that he has done so, by road signs at the main approaches where they will catch the eye of the tourist. These signs could also advertise that all motor accessories and the other accessories such as camp beds, water bags, thermos bottles, cigar lighters, luggage carriers, flashlights, tow lines, small tire repairing outfits, etc., which are needed by tourists and campers, are carried and immediately available at reasonable prices.

A very productive publicity scheme used by an Ontario dealer, is a printed card bearing full information regarding road conditions, beauty spots of the district, laws regarding lights, speed, etc., and information about hotels. These cards are distributed in the stores and hotels of the outlying villages and bring many an enquiring motorist to the dealer's door.

Another dealer has had a map made of his district showing all the roads and principal landmarks, and uses it, surrounded by his advertising material, in the form of a small card which is widely distributed.

His advertising in the local paper carries the same copy.

This service is appreciated by motorists, who reciprocate by purchasing what they require from the dealer who has tried to make the going smoother for them. It doesn't matter where this type of dealer's garage is situated, his service puts him on the main highway where motorists travel and that highway, called "Good Will," leads to his door.

Window Display

This leads up to window displays, and attractive arrangement of goods. At this time of the year a good display of accessories will accomplish a great deal in inducing sales. Displays to be successful should have a seasonable appeal. It is not so necessary to advertise the fact you are carrying a full line of pistons, piston rings, spark plugs or other standard goods, as it is to let it be known you sell thermos bottles, spare tire covers, camp beds, flashlights and all the other devices incident to summer motoring and camping. Spark plugs, and pistons are taken for granted, but the camping accessories are not; many dealers do not handle them. So in arranging your window display have in mind that you are appealing to people who are going to camp just as well as motor.

Some dealers go to the trouble and expense of arranging their window display to represent a camping scene or some other appropriate and suggestive display. Where this is practical it will be found to be worth all the trouble and expense expended. Whatever form of display the dealer prefers it should always be suggestive of the season.

Special Selling Ideas

Some accessory dealers are moving large stocks of summer accessories by sending canvassers to summer cottage colonies for house to house sales effort. Others are making good use of lists of prospects secured through nearby automobile clubs, consisting of names and addresses of people in the territory that have written for touring information. The columns of the local newspaper which contain items telling of proposed automobile tours by townspeople is another good source of accessory prospects.

There are numerous ways in which the dealer can increase his accessory business this summer, if

he will take time to consider and plan. The business is big and prospects are everywhere. If the dealer is sincere in his dealings with the motoring public, goes out half-way to meet the tourist and does all he can to serve him, advertises and merchandises his goods properly, this should be his biggest year in automotive equipment sales.

Tractors Sold Too Much on Basis of Profit and Loss

(Continued from page 5)

any reason why this extra profit should not be credited to the tractor.

One often hears of the loss a farmer sustains in the reduction in quantity of natural fertilizer in reducing this number of horses. In substituting cows for horses, he not only increases the quantity of fertilizer but also the quality as well. There are nearly seven million farmers in the United States and Canada. Fifty per cent. of them can use a tractor of one of the various sizes profitably. Three million farmers to sell to. Let's say the life of a tractor is eight years, that is being fair enough—then each one of these three million farmers is a potential buyer every eight years.

Simple System for the Garage Repair Shop

Greatest Source of Loss in the Garage Is Failure to Keep an Absolute Check on Parts Used or Time Spent on Jobs. This Story Outlines a System Which Can be Applied to Any Garage and Requires Little Equipment to Install Yet is Complete in Every Way

KEEPING accurate tab on all operations in the repair shop is of supreme importance. The dealer cannot afford to guess, he must know. Because of the keen competition existing in every line the dealer must have some system of arriving at his costs to enable him to establish a selling price to meet that of his competitor and at the same time realize a margin of profit on his investment.

The greatest source of loss in the garage is failure to keep an absolute check on parts used or time spent on jobs. The system outlined on this page will get into any garage regardless of size. It is simple, yet complete in every detail and requires little equipment to install. We are indebted to the Burroughs Adding Machine Co. for the bulk of the material used in this article.

All shop work is authorized by job orders which are serially numbered. This is a triplicate form, the third copy made of tag-board to stand rough handling. When a job comes into the shop a job order is filled out giving the name and address of the customer, a description of the car, battery or accessory to be repaired and an outline of the work to be done.

The original copy is forwarded to the accounting office where the charges for the job are finally entered. The duplicate is held in the shop office for follow-up. The triplicate is attached to the car, battery or accessory and stays with the job. The triplicate is also an order to the shop foreman to proceed with repairs.

Parts Orders

The shop copy of the job order indicates what parts are required to complete the repair. The shop foreman or clerk makes out parts orders or requisition tickets for these parts. One item only is requisitioned on each parts order. The number of the parts order and a description of the material is entered on the shop copy of the job order. If additional material is required while the job is in process parts orders are issued and entered on the job order.

The parts orders are made in duplicate, both copies going to the stockroom. The material is issued and the original of the parts order is forwarded to the accounting department. The duplicate is retained by the stock clerk as receipt for material issued.

Time Tickets

When the mechanic is assigned to work on a job a time ticket is made out. The mechanic's name or number and the job number is written on the ticket. The mechanic enters time started and stopped on the ticket, using time recorder or pencil. As jobs are completed the time tickets are turned into the shop office. All time tickets, whether the jobs are complete or in process, are turned in at the end of the day. New time tickets are made out the next morning for jobs in process. From each time ticket the number, mechanic's name or number and time consumed are copied to the job order indicated.

Time tickets are made in duplicate. The original is sent by the shop office to the accounting department, and the duplicate is filed in the shop office.

Pricing, Extending and Entering

In the accounting department the parts orders received are first priced. The unit price on material used, is obtained either from the perpetual inventory stock ledger accounts if the stock department boasts of such a system, or from catalogs and price books. After the prices have been noted on all the parts orders the extensions are made and checked.

The charges for parts used are then entered on the office copy of the job order (see illustration). The number of the parts order from which the charge is copied is also entered.

The time tickets for the day are then extended. The hours are multiplied by the established hour rate and the extension entered on the ticket and checked. The labor charge is then copied from the time ticket to the job order. The time ticket number and the mechanic's name or number is also entered on the job order.

Before invoicing, the accounting department's copy of the job order is checked against the shop copy. Parts ordered and time consumed are entered on both of these copies from the same records at different times and by different clerks, and this check insures that every item of time or materials is entered.

The invoice is then written from the original copy of the job order. The invoice may be a simple sales slip or a typewritten bill. The original invoice is mailed to the customer (in some cases filed and mailed with statement monthly) and the duplicate is used for making the entries on the daily distribution sheet, sales classification records and for posting the customer's ledger.

Filing

The original copy of the job order is filed alphabetically by dates in the accounting department. The duplicate is filed numerically in the shop office.

The original parts order is filed numerically in the accounting department. The duplicate is filed by stock number in the stockroom.

The original time ticket is filed numerically in the accounting department, and the duplicate is filed by mechanic's name or number in the shop office. The shop office file is used in settling wage disputes as well as general reference.

As all parts orders are serially numbered and must be accounted for and no parts are issued without parts orders, all parts used are charged.

The time ticket from which labor is charged to job orders are also used for making up pay roll time. The pay roll time is balanced against the time charged to job orders. This insures that all pay roll time is charged.

An additional check is provided by checking the office copy of the job order against the shop copy. All parts and time are entered on both copies and this final check insures that no charges of time or material are omitted.

Two Rules Should Be Enforced

1. No parts issued without parts order.
2. No pay roll time entered except from a checked time ticket indicating that the time has been charged on some job order.

Checking Pay Roll Time Against Time Charged to Job Orders

A duplicate time ticket is issued for each job on which a mechanic works. From these tickets the time consumed is entered on the job orders in both shop and accounting departments. The time tickets are checks to indicate that they have been entered. (Continued on page 8)

The illustration shows several forms used in the repair shop system, interconnected by lines indicating the flow of information:

- Parts Order 422:** Job No. 1627, Date 10/2/20. Item: 6 Hub Washers. Price: 1.50. Total: 9.00.
- Parts Order 421:** Job No. 1627, Date 10/2/20. Item: 1 Rear Right Axle. Price: 17.50. Total: 17.50.
- Time Ticket 1627:** Job No. 1627, Date 10/2/20. Mechanic: Allen. Work: New Over & front gear. Time: 12:00. Rate: 5.00. Total: 6.00.
- Time Ticket 1627:** Job No. 1627, Date 10/2/20. Mechanic: Williams. Work: New Apple & Pomona Gear. Time: 12:00. Rate: 5.00. Total: 6.00.
- Invoice:** Mr. James I. Wilson, 345 Jefferson Street, City. Items: 1 Stude right rear axle (17.50), 6 Hub washers (1.50), 1 Pinion Gear (11.00). Total Parts: 30.00. 10 Hours mechanic's time (20.00). Total: 50.00.
- Mechanic's Weekly Time Card:** Shows hours worked by mechanic (Allen) for each day of the week.

Forms such as these will take all guess work out of your repair shop. The cards here reproduced tell the story of an actual job from the moment work was commenced until an invoice was made out.

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

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A Profit Builder

MEMBERS of the Automotive Equipment Association are enthusiastic over the results achieved during the past year by the "Ask 'em to buy" campaign and have increased their appropriation for sales promotion from \$40,000 to \$60,000. The campaign launched last year has induced hundreds of dealers to a more intensive merchandising of accessories and equipment resulting in greatly increased profits.

There are many dealers in the country who have not yet realized the possibilities for profits in automotive equipment and who consequently make no effort to sell it. It isn't as though it were hard to sell, it is simply a lack of an appreciation of its importance as a profit getter. As revealed at the A.E.A. convention held at Colorado Springs last month, and reported elsewhere in this issue, a large number of dealers in Canada and the United States by asking motorists to buy, instead of selling them when they ask, have doubled, trebled and quadrupled their equipment profits, and in some cases built up from nothing to substantial figures.

This summer when thousands of tourists are on the highways, the dealer is presented with an opportunity of almost unlimited possibilities for equipment sales. Why not start, right now, to ask everybody that comes into your place to buy something? Practically every motorist that comes in is in need of some piece of equipment. Keep your eyes open, inspect all the cars that come in, and you will be surprised at the need for equipment and the sales you will make.

When Do Farmers Buy?

ACCORDING to the United Business Service, the purchasing ability of the farmer depends on three factors. These are (1) the size of his crops, (2) the price he receives for what he sells, and (3) the price he must pay for what he buys. According to present indications, prospects are that all of these factors will tend to make the farmer's conditions more favorable. The price at which crops sell will surely be above the levels of the past two years. It must also be remembered that the farmer's producing costs have been somewhat lowered. Labor, equipment and interest costs have been reduced. While it is true that general prices have advanced of late, the rise has occurred chiefly in raw materials and food prices. Since the prices of finished products are slower to advance than raw material, the farmer will continually be benefited by any exchange he makes by selling crops and buying the finished products which he needs. In other words, the rate at which farm prices have been advancing has not been offset by an equal advance in the prices of the commodities he purchases. The exchange leaves him an increasing margin of profit. While the chart of his purchases shows that the farmer does most of his buying in October and December, the present is none too soon to begin the preparation of plans and campaigns in his behalf. The first essential in selling to the farmer is to get his confidence. The most effective way of getting this confidence is to talk to him in terms of the business of farming. His business is growing things, and being nearer the soil he is more human.

Therefore, build sales talk on a foundation of genuine sincerity.

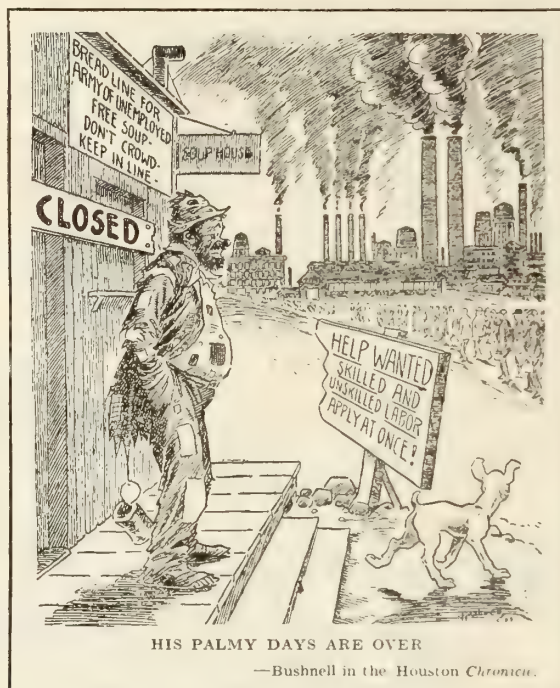
The farmer can be most easily reached through simple human appeals than by a formidable array of facts. A questionnaire recently mailed to the farmer in regard to the kind of advertising he read with most interest placed the newspaper first and circulars second.

We are, however, inclined to put much emphasis on the direct-mail method of appeal. The farmer is more susceptible to a letter than is a business man. He gets fewer of them. Furthermore they are read in the evening with more undisturbed attention.

Value of a Good Reputation

A REPUTATION for honest and painstaking service is one of the primary essentials in every business that depends on the public for support. Especially is this true in the automotive industry. The following extract from a letter addressed to a truck manufacturer by a large contractor using a fleet of trucks is illuminating and gives a valuable hint which may be observed with profit by every dealer:

"One of our reasons for purchasing your trucks



was the excellent reputation of the local dealer, for giving good service. So far we have not had much occasion to call on him; but he makes a thorough inspection of the truck every month, and so anticipates any troubles and fixes them before they become serious."

Excise Tax Modified

THE vigorous protests by automobile manufacturers and the various dealer organizations made to the minister of finance in respect of the five and ten per cent. discriminatory excise taxes on automo-

biles have borne fruit and an announcement has been made that the original taxation proposals would be modified. The original schedule as outlined in our last issue announced a special excise tax of five and ten per cent.; five per cent. where the wholesale price of the car is not in excess of twelve hundred dollars, and ten per cent. where the wholesale price is more than twelve hundred dollars. This has been modified so that the ten per cent. imposed will not be levied upon the gross wholesale price of the car but only upon that amount by which the wholesale price is in excess of twelve hundred dollars. Now the tax will be five per cent. of twelve hundred dollars, plus ten per cent. of the excess over three hundred dollars.

The announcement of this revision in the taxes is particularly welcome and demonstrates the value of organized effort.

Tractors in Industrial Field

IN selling tractors in the industrial field the dealer will find it to his advantage to study operation costs as this is the basis on which such sales must be made. If he cannot do this himself the manufacturers producing the tractor can supply him with cost records covering every different kind of job for which the tractor is adapted. The dealer should always try to present figures when soliciting a prospect, showing what the tractor is doing under conditions in other businesses similar to those existing in the prospect's business.

Simple System for the Garage Repair Shop

(Continued from page 7)

After the job order entries have been completed the time tickets are sorted by mechanics' names or numbers and the time entered on the employees' weekly pay roll record.

In large concerns with many mechanics and a large volume of repair work the pay roll is frequently prepared in a separate pay roll department. In such a concern the original time tickets follow the routine outlined previously except that they would not furnish the pay roll entries. The duplicate time tickets go directly from the shop office to the pay roll department where the pay roll entries would be made. The total hours entered on the pay roll daily balance with the total hours entered on the job orders.

Daily Time Card

Some smaller concerns prefer to use a daily time card for each mechanic. On this card the mechanic enters the number of each job worked on, the kind of repairs made and the hours consumed. This card is O.K'd by the foreman and the time is entered from the card to the various job orders. After these entries have been made and checked, the pay roll records are posted from the same card.

While this form of time report cannot be as quickly accounted as separate time tickets it is entirely practical where a small number of mechanics are employed.

Further Details Regarding Parts Orders

All parts orders are made in duplicate, are serially numbered and issued in numerical sequence. An order is issued for every item of material withdrawn from stock and only one item is requisitioned on each order. Before entering charges from parts orders to job orders the parts orders should be counted or checked to prove that all orders issued are accounted for.

It is also important that the parts order number is entered on the job order.

Checking Against Stock Ledger

The plan of issuing parts orders and of charging them to the job orders insures a positive check against loss through failure to charge for parts.

That all parts issued are charged to the perpetual inventory stock ledger is insured by checking the total number of parts orders posted to the stock ledger against the total number of parts entered on job orders.

This plan provides that:

All labor expended is charged to job orders.

That all productive labor charged to pay roll has been charged to job orders.

That all parts issued are charged.

That parts used are entered on the stock record

That charges for parts are authorized.

That gratis parts are accounted for.

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Sales Prospects Good in Saskatchewan

Car Dealers Are Frankly Optimistic. Sales Have Been from Twenty-five to Thirty-Five per cent. Higher This Season Than They Were for the Same Period Last Year

IT WOULD be safe to say that car sales in Saskatoon are from twenty-five to thirty-five per cent. higher this season than they were for the same period last year. And there is a feeling in the air that you couldn't get last year at all. The streets look different. Demonstrators throng them all day. New cars, in amazing numbers considering the crisis we have come through, add color to the situation.

This applies to urban areas, and that includes the larger of the towns in Northern Saskatchewan, the vast area that is the distributing district of Saskatoon. The country points are still feeling their way. It is not so much that farmers are still suffering from the wallop of crops destroyed. It is because they are seeding. Wet weather, on top of soil already soaked, has kept seeding back, and today they are hard at it. They haven't time to look at or hear about cars, let alone buy them. But they will.

Dealers are two weeks late this season. The usual May boost is just starting, near the end of the month. Many agents have had a splendid April. They claim sales were extraordinarily good. And they are surprised and so is everyone else who stops to think about it for a moment.

April Marked Upward Trend

In January things were pretty flat. It was hibernation absolute. Repair work was done, and second hand stuff was handled, but that was almost all, save for some anticipatory activity. February was about the absolute zero of the past few years, and dealers, nearly all, were skeptical and looking forward to one of the poorest years they ever had. Then March came and some business started. Inquiries came in, inquiries of a definite character, showing a distinct inclination to seek particulars on types and models and prices already dreamed of and decided. In April the trend was unmistakable, and dealers then got the fever of it. May brought actual proof, and at the time of writing, May 25, cars are going out every day.

There are several reasons for this. The first is that prospects are good, better than they have been since 1915, that wheat will grow this year. The second is that prices are down now about as low as they can go, about at pre-war levels, and the chances are the next definite move they make, with the budget tax of five and ten per cent. under and over \$1,200, will be upward. The sales tax also adds something. On the other hand, freight rates are due to come down, and that will partly offset the increase. But we wander. The third reason is that, with the bad years and a lot of cold-blooded experience behind them, agents are working along new lines, working harder, and have found out how to work to better effect. They have had to. The fourth reason: Things have been fairly flat for a couple of years or more. Men who intended to buy cars then didn't buy them. They kept their old ones. Now they have to buy. The fifth reason is simply that this is the season when one buys cars, with September a close competitor.

How It Is Being Done

One of the best features this year is the pioneer work being done by some companies that have not been solidly in the field before. The Breen Motors are organizing North Saskatchewan for the first time. They were in here before, but not on a staying basis. This year E. N. Irvine, sales manager for Oldsmobiles, is working out of Saskatoon, doing as high as a hundred and seventy-five miles a day with a car, during the periods that roads have permitted, lining up new agents at all possible points. And he is out primarily for survey work. The tragedy of abandoning sales prospects for the sake of information has hit him like a brick. But that's what the motor companies are after who are not already entrenched.

Distances are so immense that demonstrators and salesmen find it an individual proposition for the most part in the rural areas while they are working into the new fields. For this reason also, their season has been later this year, for even yet country roads are truly terrible in much of the district.

Automobile men don't look for a spasmodic trade this year. They figure it will run along more

By G. H. SALLANS

smoothly over the summer. During the past two years it has resolved itself into about a thirty-day spurt, then a lull with a large "perhaps," and a new gain in September. This year it looks like a steady business, mostly on account of the wheat prospects, which are above comparison with last year in most of the country.

J. H. Early, of the Early Motors, Saskatoon, who took a chance right in the depression and put a hundred thousand dollars into a new plant, has just returned from a trip to South Bend, Detroit, and a few

NOT AFRAID OF NEW TAXES

The increased prices of cars due to higher taxes, Saskatchewan dealers claim, will make only a temporary difference to car sales. They deprecate, however, the principle of discriminating against the higher priced cars. They believe if the tax is five per cent. on cars under twelve hundred dollars it should be five per cent. on cars over that figure.

other factory centres. He is amazed at the full blast operations there. He traced the movement of the business gains this season. They started in the New England States, spread westward to the middle states and north into Ontario, where cars, according to sales analyses, are selling strong. The new spirit has now reached out past Winnipeg, and its effect is already felt here. The city itself has responded. The country will.

"People," declared Mr. Early, "say it's all bunk about the automobile business picking up fast. I tell you it's not bunk. Business is good. Business is gaining right along. April was a good month for us, May has been better, and our advance orders are far better than they were last year." Mr. Early handles Studebakers.

Trend To Middle Class Car

The trend to-day is in the main toward the middle class car. The light cars are still selling strong, and gaining, but not in the same proportion as the slightly better car, the bigger fours and some of the light sixes. The supers are also doing well, but not gaining so fast as the lighter models. It is a case of getting a car to suit the country—and this is a country for light cars—and yet of getting something a little better than the cheapest. A sales chart for New York shows the trend which dealers say is fairly representative of all the smaller centres. In January the light cars had it. February showed a gain of from a hundred or two hundred per cent. for the medium cars, where the lightest ones little more than held their own. March repeated, and April ran as high as five times the January total for medium cars, lightest models about double. One or two makes went up to eight times.

Take that on to one month later, and the table of three months, they say would apply to the middle western areas, take it on another month and it would about fit Saskatoon and corresponding territories.

It cannot be said that the trend is toward the closed-in car. But this can be said, that the sales of closed-in cars are increasing faster proportionately than those of the open models. Saskatoon is reputed to have more closed-in cars proportionately than any other city in North America. There is no statistical backing for this, that we have seen, but the claim would appear reasonable. A closed-in car is a matter of temperament, of course, plus an increase in the price that may or may not commend itself to the buyer, but it is particularly appropriate for the west where temperature spreads

are great. The light coupe is exceedingly popular. In one block we counted twenty-nine cars. The reason we counted them at all was that at first we noticed seven light coupes all nearly in a group. There were two others, scattered among the remaining twenty-two.

McLaughlin, Ford, Gray-Dort, Maxwell, Studebaker, Oldsmobile, Chevrolet and Dodge agents have reported gains ranging from ten to thirty-five per cent. so far this season. They are doing it with improved showrooms, closer knowledge of customers' needs, greater attention to individual demonstration and more thorough advertising. Some claim, that, if present prospects are borne out, they will double last year's sales.

For once at least dealers erred last year on the pessimistic side. They frankly did not expect such good business this year. And they can afford to say so now.

The increased prices due to higher taxes, dealers claim, will make only a temporary difference to car sales. These will run up to two or three hundred dollars on the higher-priced models, but they will be accepted as inevitable, and with resultant philosophy on the part of the public, a necessary evil that must be tolerated. The claim that duty-free cars under one thousand dollars entering Canada from the United States with settlers' effects will result in considerable smuggling raises little excitement here. It is too far from the boundary.

But there is one thing that seems to rankle, and that is the tax discrimination which sellers of higher-priced cars claim is not fair. They believe if the tax is five per cent. on cars under twelve hundred dollars it should be five per cent. on cars over that figure. That resolves itself into an argument as to what constitutes a luxury, for a big car which may be a luxury in one case is a necessity in another. And besides, luxury taxes are an uncomfortable subject, an unfortunate topic in view of the million and a half which dealers lost by the action of the former government, and which they still claim in refund, but for which they they will likely be allowed to whistle.

CHEVROLET FLAT RATE SYSTEM

Detroit, June 23.—The Chevrolet Motor Co.'s flat rate system on service will be mailed to all dealers and independent garages giving service on Chevrolet cars next week. The principal feature of the system is that it sets up a time for all major and minor operations necessary in servicing, and permits the service man to fix his labor charges on this basis.

The original plan of fixing the charge on a flat rate basis was abandoned in favor of the plan fixing the time, so that it would meet different labor conditions and wage schedules in all parts of the United States and foreign countries where Chevrolet service is given. In setting up the time, the use of certain tools listed under the plan is counted upon.

The primary purpose of the plan is to help dealers and service men fix a charge for service previous to the performance of the work. To do this they will consult the flat rate schedule to ascertain the time required, and then add in the cost of new material or parts they are required to install. Fixed material and parts costs have been effective previous to this time.

Although the employment of the flat rate in fixing charges is left largely to the discretion of the service shop, the company is setting up the advisability of its general use in maintaining the customer's good will. The effect of the flat rate will be carefully followed and any revisions regarded as making for improvement will be made from time to time.

ENGLISH MOTOR COMPANY IN CANADA

A DISPATCH from London says that an English motor car company has decided to establish a branch in Canada, which will permit its product to compete with American cars. The company will turn out a small car in an assembling plant in the Dominion, and if it is successful will experiment with complete manufacture there. It is hoped to sell the car in Canada for less than \$1,000.

The Lubricating and Cooling Systems

The Different Systems Fully Explained. Common Troubles Enumerated and Hints Given for their Correction. Special Attention Given to the Various Systems Used in Tractors. This Article Will Help You to Become Acquainted with All the Eccentricities of the Lubrication and Cooling Systems.

WHEN we look back over the span of years which is covered by the development of the internal combustion engine, we cannot but realize the fact that here, in handling the lubrication and cooling problems, perhaps more than in any other, designers have been remarkably successful. Engine designs have changed; it is only a few short years since the one-lung Cadillac and the two-cylinder McLaughlin were chug-chugging up and down our streets; what a different device is our present cast en-bloc, dust-proof and one unit engine and transmission system. Carburetors too, have come and gone. The old models of the Schebler and the former Rayfield types, the merits of which were perpetual bones of contention both on the repair floor and on the race-track, between Barney Oldfield and Homer George, one of his trusty mechanics, in 1912, are now relegated to the scrap heap of inefficiency. Likewise ignition systems such as the old Bosch and Remy, Dual and Double, which were once thought the acme of perfection have given way to the

By L. G. HEIMPEL, B.S.A.

the fact that the heat is too much for the oil's heat-resisting qualities. We must not forget that when a tractor motor is "opened wide" when under a heavy pull, that there is not increase of speed through the air of forty or fifty miles an hour to help cool the racing motor. There is still the same struggling 1.85 or 2.5 miles an hour, or if anything, less, due to slippage of the drivers as their lugs scratch and grab for the toe-holds on the ground. All heat of the increased fuel consumption due to a heavy load must be taken care of by the fan and the radiator.

And, what is more, most of them do it, if given half a chance. Then there is the problem of different seasons. In spring, the writer knows that most tractors will run a little too cool, but with a little attention by way of covering part of the radiator, the temperature can be kept at a point where they will burn kerosene "beautifully." (Service men should be careful to inform tractor owners of this.) This generosity of design in cooling systems is absolutely necessary when we think of the days when the same engine, which in spring seeding is over-cooled, will be going at top speed and under full load when the temperature is ninety or a hundred in the shade.

Not only should our designers come in for a bit of praise at this point. The oil man too has done wonders to be able to supply oils which stand up under the grilling oil gets as soon as it is poured into a tractor crank case. To produce an oil which withstands the temperature necessary to successful kerosene burning, is a problem, the enormity of which is not generally realized. First of all, it's not a case of keeping an engine cool enough to run, but one of keeping it hot enough to run—"more heat of all things"—says the oil man. Yet, though we have seen plenty of oils which do not stand up under "more heat," the oilman has always managed to produce the goods in the end. Once oil is in the crank-case of a kerosene motor it is in reality "twixt the devil and the deep sea." If it can't stand heat, it will go to pieces; and if the motor is cooled cool enough to allow the use of a poor oil, then the kerosene won't evaporate fully, and some will come down past the pistons and rings, and cut the life out of the oil by mixing with it. So that summing the situation up, it's a case of cooling a motor "hot enough" to burn coal-oil and then supplying an oil to stand up under the heat.

How Oil Systems Do Their Work

As far as cylinder oiling of gas-engines is concerned, all engines come under one of two heads, vertical, or horizontal. The vertical cylinder can be oiled with a splash oiling device—the horizontal cylinder cannot be so oiled. Originally, designers thought that cylinders needed fresh oil fed to them even in vertical engines, but they have changed their minds about that. As late as 1912 the Overland cars came out with the oil pump on the side of the engine to oil the cylinders. The writer had one of these cars, and noticing one day that the oil level in this oiler was not getting any power, found the pump drive broken. Though it took several days of driving with it in that condition before he took notice of it, yet the engine worked as well

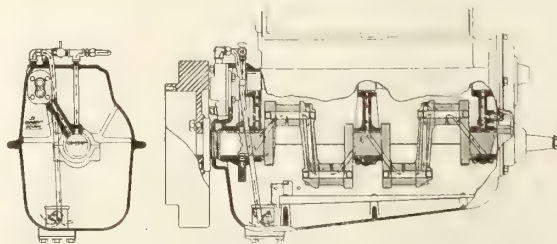
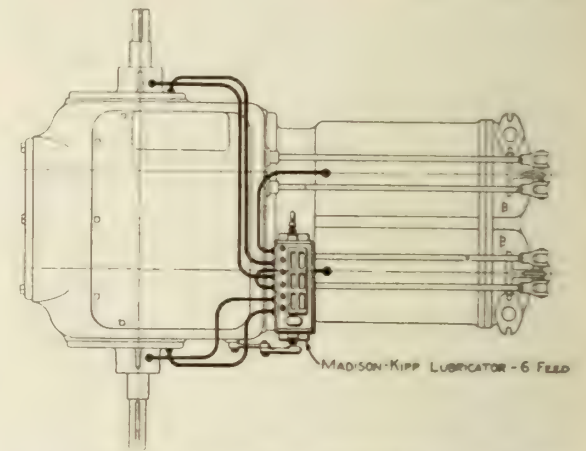


Fig. 2.—Cross section of motor showing force feed oiling system. Arrows indicate the course of the oil.

as ever. The crank was splash-oiled which took care of the cylinders. That pump was not fixed for a long while and we noticed no difference in the running of the motor as long as we kept the oil level high enough so that the cranks could get hold of it.

To-day, probably over ninety-nine per cent. of all vertical motors, whether tractor or automobile motors, have a splash system of cylinder lubrication. All that is necessary to make this a success is, first, a definite supply of oil within reach of the big end of the connecting rods at all times, and second, a sure guard against over-supply. Among early models we find those in which a gallon or two of oil was poured into the crank case until it rose within reach of the "oil dippers" and all that was necessary was to keep it at that level. It worked, both on cars and on stationary engines, but it was open to objections. As long as the engine was on "level keel" all was well, but when tilted up at either end the high end went dry while the low end was flooded. Besides, there was not room for a sufficient supply of oil to give an owner confidence as to how far he could go without adding oil, to say nothing of the fact that the oil was frequently dirty when well mixed



Oiling diagram for the Titan 10-20 showing installation of mechanical lubricator and oil tubes.

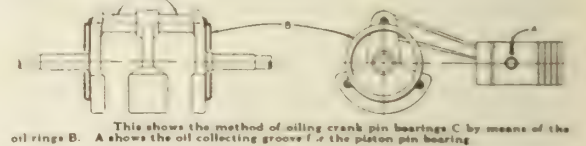


Fig. 3.

because all the dirt in the crank case was churned up once the engine became warmed up.

All these difficulties are overcome by the circulating splash. Briefly, as is shown in the cuts, the troubles mentioned above were overcome in the following manner—by giving each connecting rod its own little "duck-nest" or oil trough in which the oil never rises too high and into which it is pumped by a positive drive force pump or some other means of positive circulation, the cylinders and cranks being oiled as long as the motor remains approximately right side up. No matter whether the front or rear end is "high," no matter whether a tractor runs "on the land" or one wheel in the furrow, this oiling system always oils just enough and no more. The reservoir, which is situated below the diaphragm containing the duck-nests, is far enough away not to be reached by the cranks, yet holds enough oil to last perhaps ten to fifteen hours continuous work. Furthermore, before the oil can leave the reservoir on its round to the duck-nests, it is strained so that no foreign matter can choke up the pipe; the reservoir being at the same time provided with a sediment and water trap to which all heavy dirt, pieces of metal or drops of water can settle and pass out of circulation. A gauge in front of the driver always keeps him informed as to the workings of the oil pump while another is a tell-tale as to the height of oil in the reservoir.

Not all circulating splash systems use the "duck-nest" systems for oiling. The drilled crankshaft through which oil is forced into the connecting rod and main bearings should be here mentioned. The principle of cylinder oiling however remains the same. More oil than is required for the bearings is pumped to them, and the excess of course is thrown off the flying cranks, beaten into a veritable mist in fact, which oils the pistons and cylinder walls; all oil not burned up returning to the reservoir from whence it is kept moving by the pump.

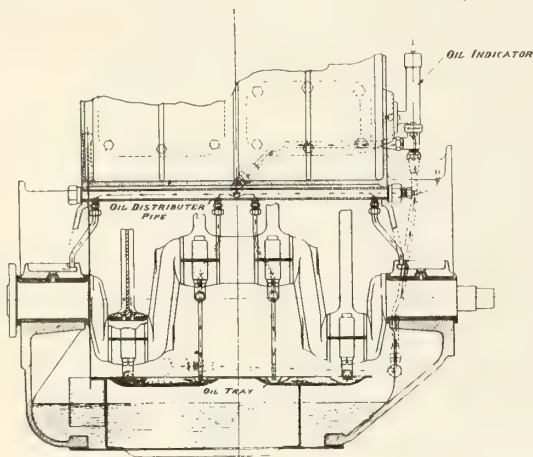


Fig. 1.—Splash Oiling System Pump Circulation

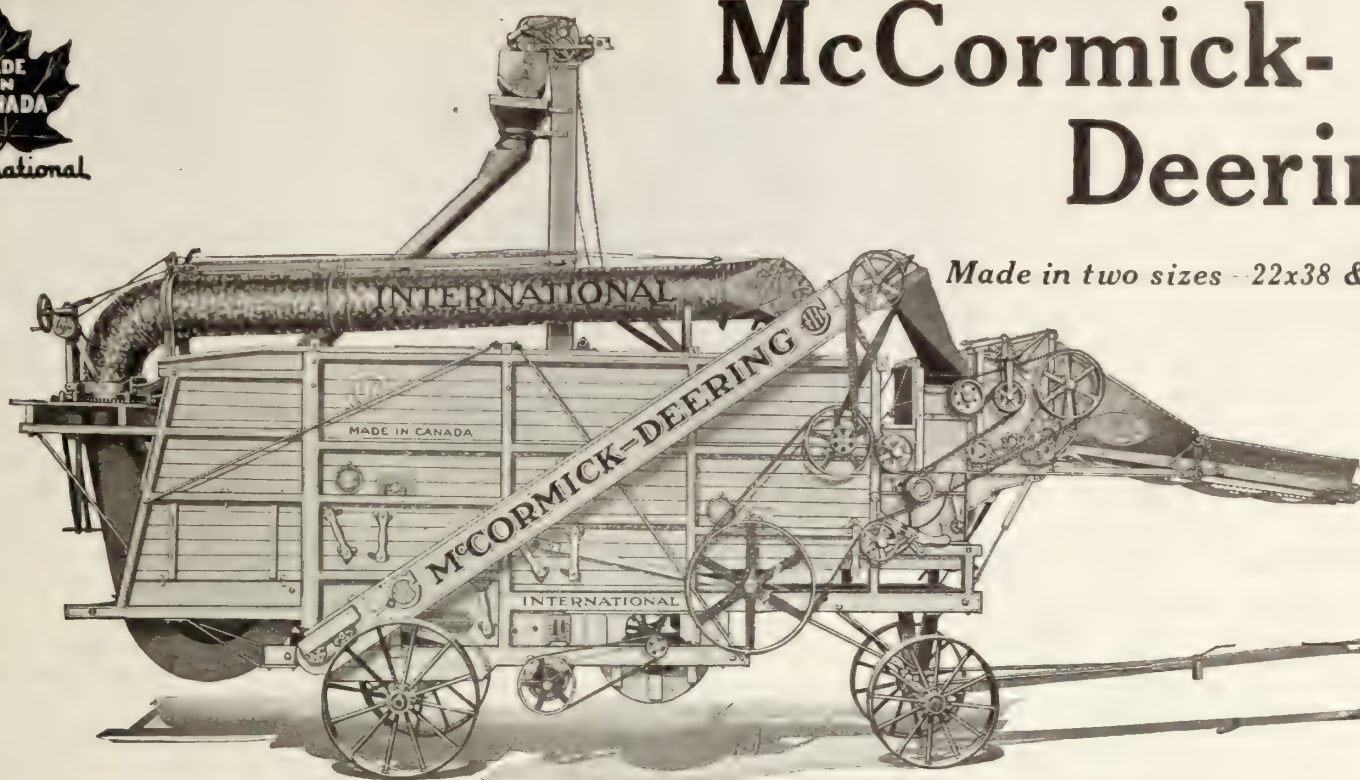
storage battery and single breakcoil in motor construction or that wonder of the tractor field, the impulse starter on the high tension magneto. All these systems have undergone development in which former types were in many cases almost lost sight of. Lubrication and cooling systems, though anything but simple problems, have not seen much change through the last decade of motor design.

Nor is it that these are not difficult problems. Only those who realize the terrific temperatures of the explosion chamber, the tremendous amount of friction to be reckoned with in dealing with flying pistons and thrashing cranks of even a small motor car can understand the magnitude of the problem. Then there is the difficulty of expanding metals; pistons must fit cylinders to around .008 of an inch at the head and closer at the skirt to make good compression. Expansion makes this space yet smaller still, till we wonder how oil of any kind can get there and live. Yet only very seldom have we lubrication troubles of this class. With the motor car these difficulties did not assume their maximum proportions. Their motors are seldom worked to capacity, and if they were "opened up" the increased speed of the air through the radiator due to the increased speed of the car carries off excess heat and nothing suffers. In the tractor though, things are different. Our experience is that tractor motors never have too much power. Whether it's the fault of the designer in underestimating the power required to handle farm implements successfully, and we know that in some cases this is so, or whether it's a case of the farmer loading up until he is "taking the last ounce out of her" all the time which again is true in some instances, does not matter much. The fact remains that tractor motors are almost always working under a hundred per cent load and too often more than that. Yet, it is very seldom that we have cases of scored cylinders or burnt out bearings, due to the job being too much for the oiling or cooling systems.

Lubrication and cooling go hand in hand; if one suffers the other is bound to be affected. Let the fan belt of a tractor slip when under a heavy load and a hot engine results, and presently there is a loss of power due likely to



McCormick-Deering



Made in two sizes - 22x38 & 28x46

Cash in on a few Thresher Sales

Many of the tractors in your community will be idle during threshing season unless you go out now and sell the owners McCormick-Deering Threshers. Every tractor owner who has a thresher can thresh his own grain on time, and then help pay for his outfit by threshing for a few of his neighbors. A thresher is a paying proposition for the farmer, and its sale will pay you a good profit.

Farmers like the McCormick-Deering because, first of all, it gets all the grain. It is quickly adjustable for threshing all grains and handles light or heavy straw equally well. The separating device is the result of long experience and turns out clean grain without waste. The highest grade of material, expertly assembled with accurately fitted self-aligning bearings, assures long life and low repair expense.

The Titan 10-20 is equally well-known among farmers, and is a very satisfactory machine to sell with the McCormick-Deering Thresher. In this outfit you have a complete rig that can't be beat. Why not go out and tell the farmers about it?

INTERNATIONAL HARVESTER COMPANY

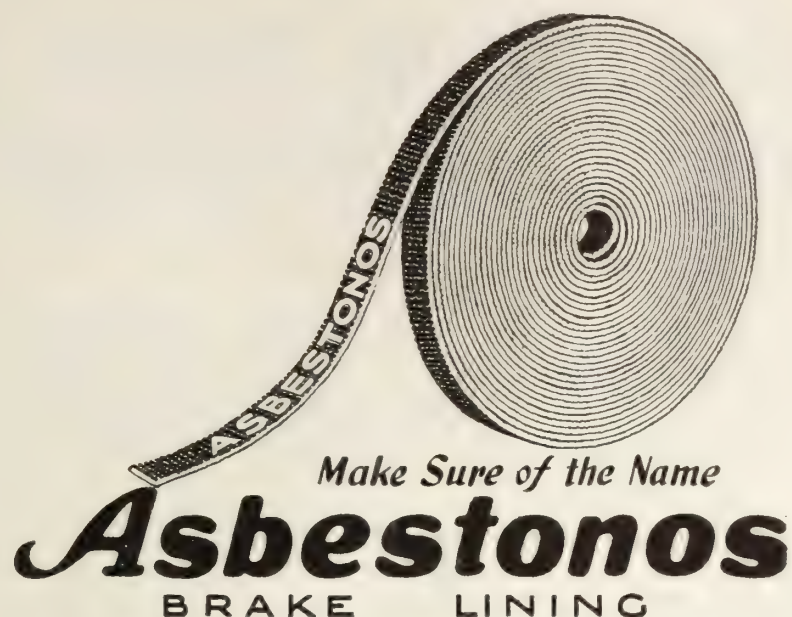
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ESTEVAN N. BATTLEFORD REGINA SASKATOON YORKTON SASK.

EASTERN BRANCHES - HAMILTON LONDON OTTAWA ONT. MONTREAL QUEBEC QUE. ST. JOHN N. B.





ASBESTONOS

Brake Lining is Made-in-Canada from Canadian materials by Canadians—an all-Canadian product.



FREE Display Stand supplied to dealers. Ask your jobber about it.

Made right in the centre of the world's supply of asbestos, and only the finest asbestos fibres are used in its production. These selected asbestos fibres are woven with double strands of brass wire, to give added strength, and after weaving is thoroughly impregnated with a special compound which renders it impermeable to greases and oils. The result is that Asbestonos is a perfect brake lining—a brake lining that will give long service and be dependable in an emergency. The moderate cost will be a revelation to you.

Ask Your Jobber for Asbestonos

ASBESTONOS COMPANY, East Broughton, Quebec

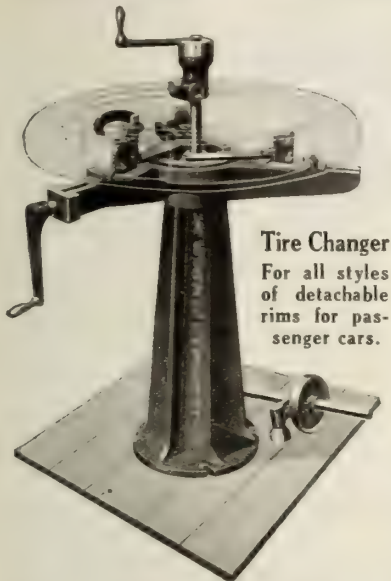
Sole Factory Representatives:

Richardson & Bureau
 MONTREAL

Jardine Universal Tire Changer

New—Handy—A time and Labor Saver

No particular skill is required to quickly change a tire with the Jardine Universal Tire Changer. The principle of operating the sliding jaws together with the compensating jaws for contracting the rim and the rollers which operate when expanding the rim, places this machine beyond competition. Price \$55.00.



Tire Changer
For all styles
of detachable
rims for pas-
senger cars.

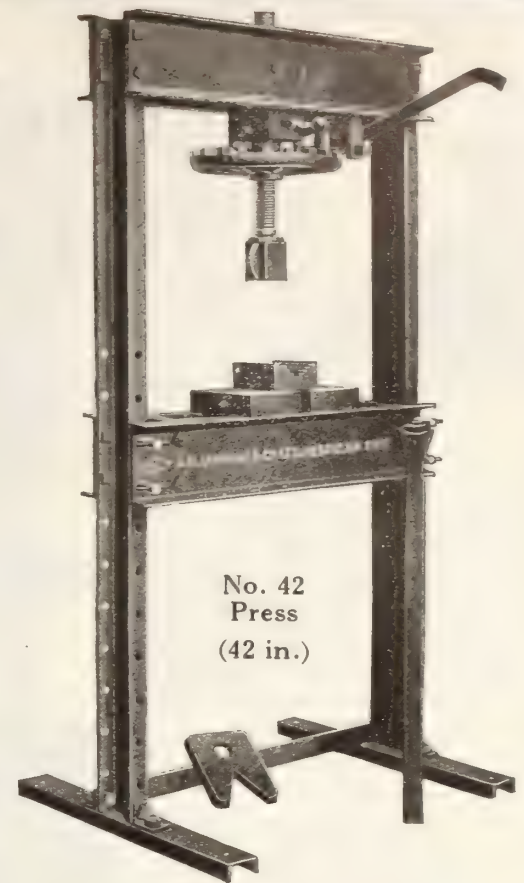
Jardine 25-Ton Presses

Sturdily constructed and of good quality steel, these presses will stand all the strain you may put upon them. 25 ton capacity absolutely guaranteed.

Price, 32-inch, \$95.00 (with Rack Press Attachment, \$133.00).

42-inch, \$100.00 (with Rack Press Attachment, \$145.00).

We also make Floor Cranes, Combination Floor and Wrecking Cranes, Engine Stands, 3 styles, Grinders, Blowers, Forges, Drilling Machines and Taps and Dies.



No. 42
Press
(42 in.)

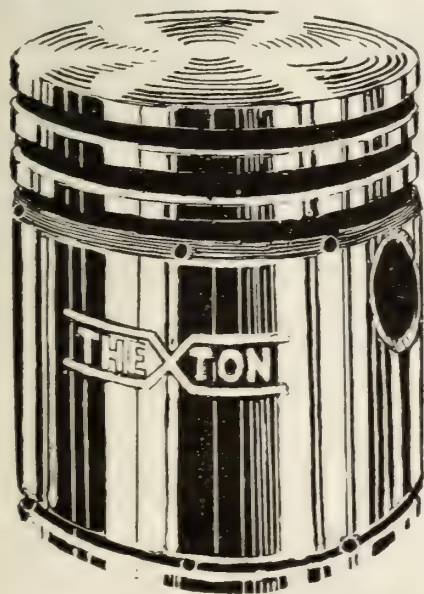
A. B. JARDINE & CO., LIMITED
HESPELER, ONTARIO

This Coupon Entitles Sender to Catalog G-22.

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Address
Can. Motor and Tractor

REPLACEMENT PISTONS



AND PISTON
PINS

*All
Sizes in
Standard
Designs*

Cylinder grinding jobs promptly completed and at moderate prices. We have the right equipment for this work and can assure satisfaction.

You will have no difficulty in securing the pistons you require if you get the habit of ordering from us. We have the largest list of any Canadian manufacturer.

Thexton Machine Works, Limited

736 Dundas St. E.,

TORONTO

Phone Main 4233W



TRAILERS, DUMP BODIES, HOISTS, TRUCK UNITS

Trailers. We manufacture a complete line of trailers, 1/2 to 10 tons capacity. The right kind of trailers behind your truck will reduce your hauling cost approximately 45% per ton mile.

Dump Bodies. Automatic Side and End Dump Bodies from 1 to 10 cubic yards capacity. Hoist operated, Utility Dump Bodies 1 1/2 to 5 Cubic Yards capacity.

Hoists. Our Hand Hoists operate speedily and efficiently. They are free from complication and can be used satisfactorily with all Dump Bodies up to 3 Cubic Yards capacity.

Truck Units. Dominion Truck Units convert all reliable makes of pleasure cars into dependable trucks.

Complete Catalogue will be sent on Request

DOMINION TRUCK EQUIPMENT CO., LTD.

ESTABLISHED 1914

KITCHENER, ONTARIO

Automotive Accessories and Implement Equipment

AMBU BATTERY PARTS MOLDS

BATTERY repairmen will be interested in learning about the new battery parts molds just placed on the market by the Battery Appliance Division, American Bureau of Engineering, Inc. They enable the battery man to make 90% of the lead parts required for storage batteries, using his scrap lead. The molds are made of gray iron, machined so that castings are easily removed, and heavy enough so that they will not overheat where speed is required.

The post strap mold is especially designed for speed, and its principle of operation permits of castings being quickly and easily removed. Casts three posts with straps per minute. A patented movable tooth rack enables the operator to cast odd and even number teeth on the post strap to receive the plates, correctly spaced for all standard batteries. Is furnished with two bushings, standard positive and negative, and one movable tooth rack.

The link combination mold will cast five of the most used cell connectors for all batteries, using standard jars, 7-9-11-13 and 15 plates, 4 end connectors (2 Dodge tapers and 2 standard tapers, negative and positive) 1 end connector, $\frac{3}{4}$ in. lead used on 12 volt Maxwell and all other cars using a wire lead, L small wire lead to connect with end post on storage batteries requiring direct connectors. Post support rings fit the two sizes standard rubber covers; it casts two handy washers, also, and is furnished with four taper plugs, 1 large and 1 small cable bushing.

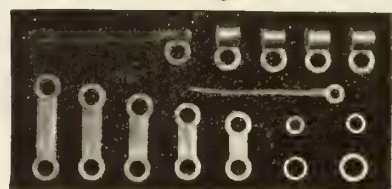
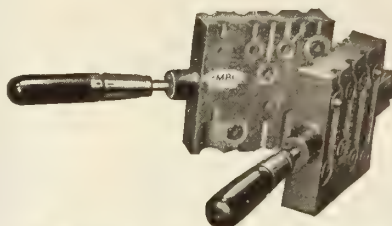
The terminal mold will cast four end connectors, one cable lead, and two washers. Furnished with four taper plugs and one cable bushing.

J. S. R. OIL GAUGE

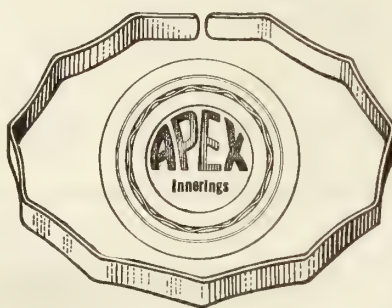
THIS oil gauge is for Ford cars and on all high grade cars. It is installed by removing the last bolt in the crankcase on the carburetor side of the engine. The threaded end of the oil gauge is put into the bolt hole and the nut is screwed up. Tubing and fittings connect the lower pet cock on the rear of the flywheel housing with the oil gauge. The oil level is indicated at a point easily visible when the hood is raised.

LAWCO MOTO-METER LOCK

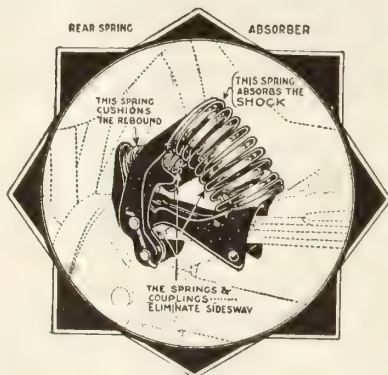
THE LAWCO Moto-Meter lock, made by the F. H. Lawson Co., consists of a bar type radiator cap to which the moto-meter is attached. It is made of heavy sand-cast bronze, machined, and nickel plated. One size fits practically all round radiator necks. No changes on the radiator neck for fitting are necessary. When the cap is screwed into place the key is turned a few times which operation runs a screw into a hole in a base which is fastened to the radiator filler neck with pointed set-screws from the inside.



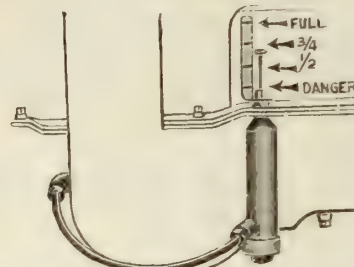
Ambu Link Combination Mold.



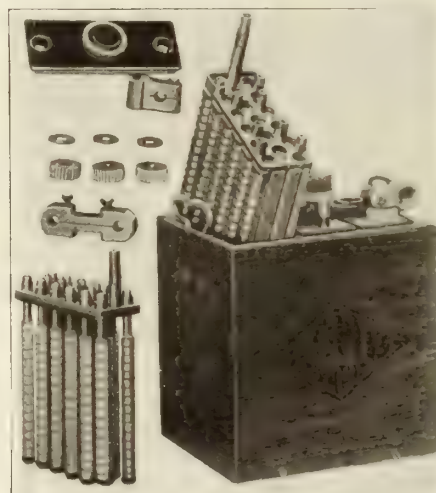
Apex Innering



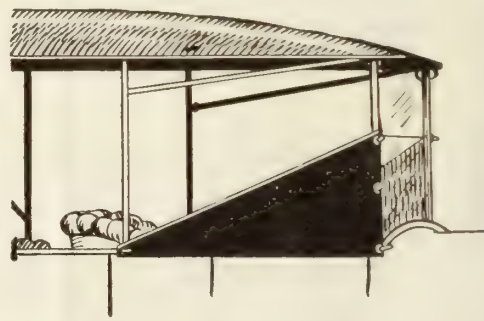
Mainwell Shock Absorber



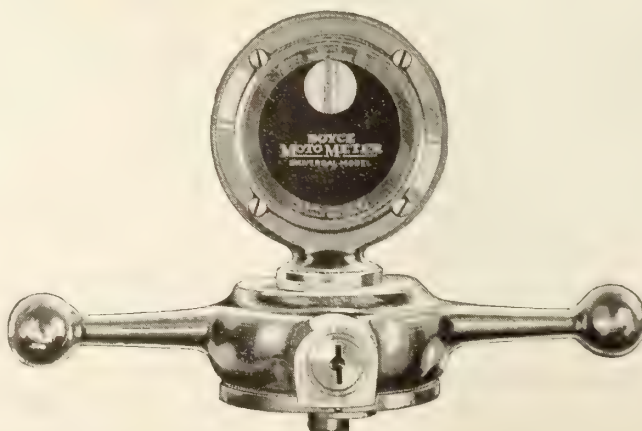
J. S. R. Oil Gauge



Bong Battery



Eagle Wind Deflector



Lawco Moto-Meter Lock

BONG BATTERY

THIS battery uses the same elements that have been used by all battery manufacturers since storage batteries became a necessity for motorists but instead of the wooden or rubber separators it is made with the positive elements constructed like a reinforced concrete building fitting into holes in the negative elements. These positive pencils can be replaced as easily as can spark plugs. With this construction separators are eliminated and the battery can be taken apart without the use of a gasoline torch. It is made by the Bong Battery Corp.

MAINWELL SHOCK ABSORBER FOR FORDS

A DOUBLE spring shock absorber that fits in between the spring and the spring perch. The large spring absorbs the shock and the small spring takes the rebound. The springs and couplings are claimed to eliminate side sway. The absorbers can be installed in an hour and no changes are made in the Ford construction.

REX HEADLIGHT CONTROL

THIS device controls the headlight from full brilliancy to extreme dimness by gradual transition. The controller is attached to the steering column and is operated by a lever which is within easy reach of the fingers when steering. The controller wire is connected to the headlight wire and can be installed in any car in a few minutes. It is made by the Bar-Rex Co. Toronto.

APEX INNERINGS

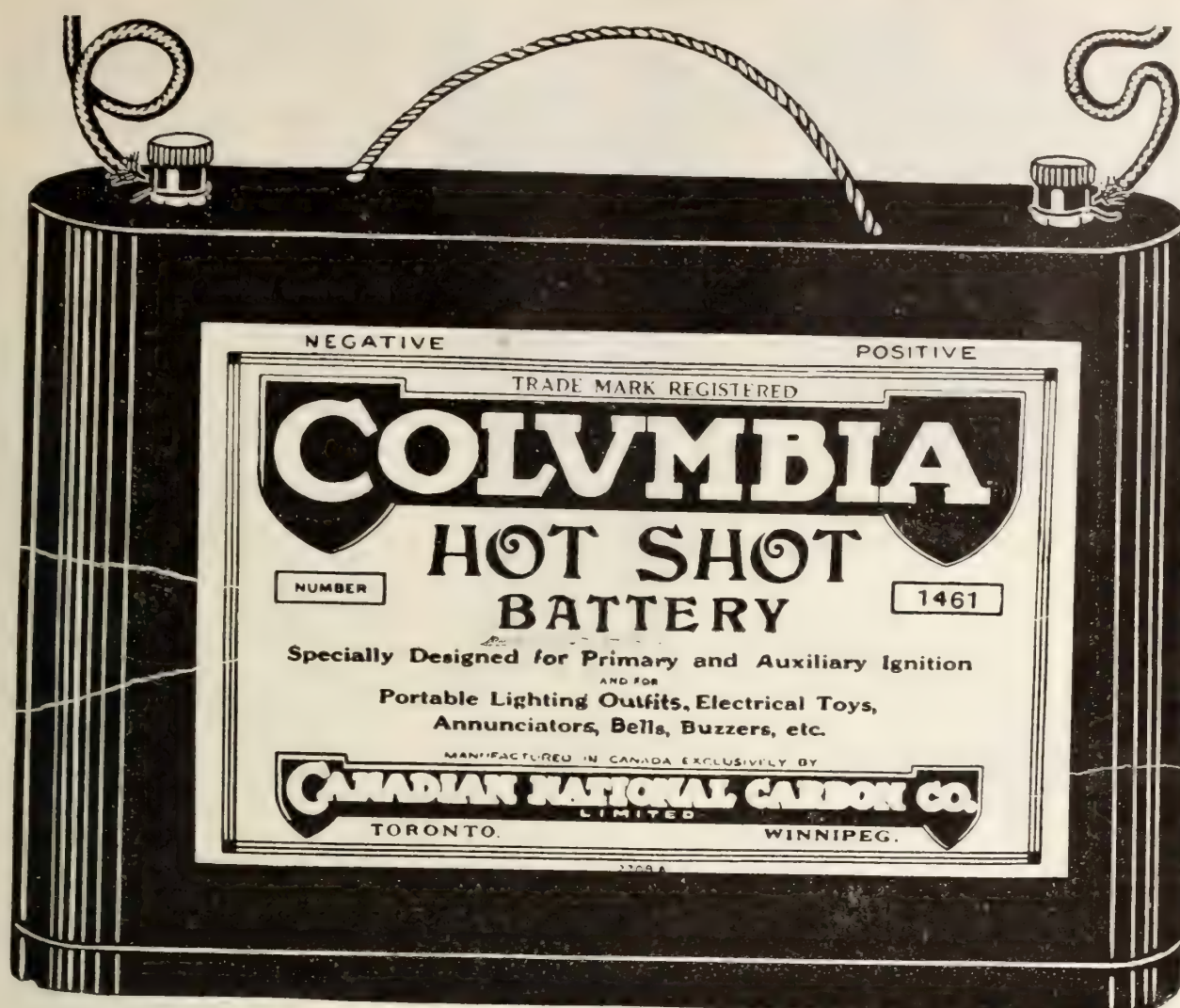
THESE innerings fit under the regular piston ring and are designed to overcome tapered cylinders, slapping pistons, and oil pumping rings. They are made from Swedish steel which, it is said, will not lose its resiliency from motor heat. They expand the regular piston ring outward so that it comes in perfect contact with the cylinder wall, declare the makers. Made by the Thomson-Friedlob Mfg. Co.

ALLEN CONNECTING ROD ALIGNING AND STRAIGHTENING FIXTURE

THIS fixture uses different size bushings for testing connecting rods of different size crankshafts. All working surfaces are machined. The aligning bar has an expansion feature which makes it quick acting. Made by the Allen Wrench and Tool Co.

EAGLE WIND DEFLECTOR

THESE are made of artificial leather and are designed to protect the driver of a car against cold, wind and dust. They are triangular in shape to fit in the back of the windshield and over the front doors. Made by the New England Fabrics Mfg. Co.



Canada is Expecting the Greatest Harvest in Her History

More men and more machines than have ever before been used in a harvest will be employed to gather in this tremendous crop.

Every tractor and gas engine will need dry batteries and plenty of them. Here is a golden opportunity for you to sell Columbia "Hot Shot" dry batteries. Every farmer knows that the Columbia delivers the hottest sparks for the longest time, so your market is ready-made, waiting for you. Look to your stock. Order early from your jobber, and specify Columbias.

The wise dealer will make sure of his supply—and profits.

CANADIAN NATIONAL CARBON COMPANY, LIMITED

Montreal Toronto Winnipeg



\$1.00 an Hour for Your Spare Time!

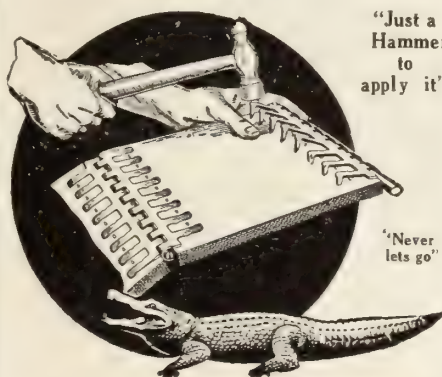
If you have any selling ability at all you can easily make this much representing *MacLean's*. In your spare time only!

TRY IT!

Write, Tell me about your Spare Time Proposition. Address:

AGENCY DIVISION
MACLEAN'S MAGAZINE
TORONTO

"The Strongest on Earth"
—And the Quickest and Easiest to put on.



Your Power Trade Knows the Saving

Power farmers everywhere will testify to value of Alligator Lacing. Nothing else like it. Saves help and time when it is most valuable—saves when belts break and men and machines stand idle. Economical too.

Advertised now in leading national and state farm publications.

LAST CALL FOR THRESHER BELT SIZES

5 ply thresher and tractor belts. Size 27 for heavy 4 ply belts and sizes 25, 20 or 15 for lighter belts. Your jobber has it—or we'll send sample, valuable book and prices, free. Keep a stock the year round.

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LETERRAIN

Let's go!



"Leterain"
is the World's Recognized
Windshield Cleaner

We guarantee "LETERRAIN" to keep your windshield clear during TWELVE HOURS under the heaviest rain or fog and to positively last a whole year, or we'll refund the money. It is the only recognized successful windshield cleaner on the market and stands in a class by itself. It can be used on either wet or dry glass and will give equal satisfaction. Packed in a POCKET SIZE CONTAINER to preserve it from grease or dust when carried in your automobile.

MAIL ONE DOLLAR

and drive your car in safety and with comfort for a whole year under the worst weather. Remember it will keep your entire windshield clean.

Sole Canadian Licensee

The "Leterain" Sales Company
180 St. James Street Montreal, Que.

Territorial agents and dealers write for best proposition in the Automotive Field.



ANNOUNCING A NEW SIZE TRACTOR

THE J. I. CASE Threshing Machine Company announces a new size kerosene tractor to be known as the Case 12-20. This latest addition to the Case line of tractors is built along similar design to the other sizes.

The idea that prompted the Case people to produce this new tractor, was to have a tractor of practically a 2-plow size, yet one that would pull 3 plows under ordinary conditions. In this manner the efficiency of this small tractor is much increased, as it will do 50% more work than the average 2-plow tractor. Another feature of this tractor is the type of construction throughout, which is the result of an effort to produce a tractor that will stand up and last a longer time than the average tractor on the market at the present time.

This tractor is recommended by the makers to handle a 22 x 36 thresher with all attachments, in ordinary threshing. It will operate a 12 or 14 inch silo filler, elevating to the average silo. In plowing it will handle three 14 inch plows under average conditions, plowing 7 inches deep. In heavier work, such as breaking, two 14 inch plows are recommended. It pulls an 8 foot double disk in high gear in the average field, as well as a 12 foot grain drill and an equal width of harrow.

A one-piece frame holds all bearings, shafts and gears in alignment. The frame is rigid and all parts are so balanced that there is very little vibration. All working parts are enclosed in dust and dirt proof housings and operate in oil.

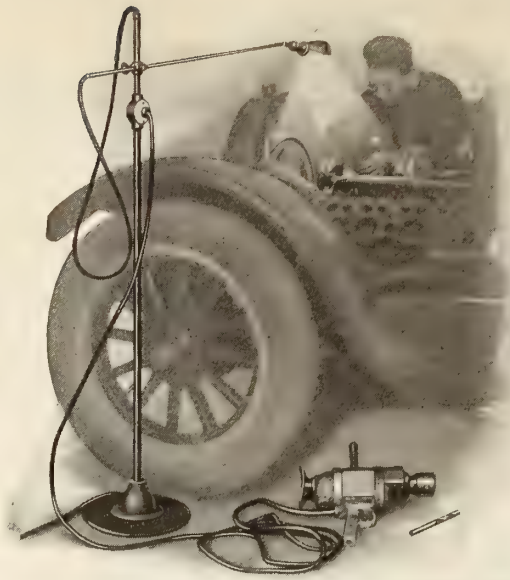
The engine is of the vertical four cylinder valve-in-head type especially designed to stand up under the strenuous work to which tractor engines are subjected. The cylinder bore is 4½ inches and the stroke is 5 inches. At normal governed speed of 1050 r. p.m., a maximum brake horse power of 25 is attained. The cylinder head is removable. The entire surface of each combustion chamber is machined smooth. Adequate cooling space is provided around valves. The valves are operated by drop forged steel rocker arms with bearing surfaces hardened and ground. The entire valve mechanism is enclosed in a dust-proof steel cover and all parts lubricated by oil spray from the crank-case.

Renewable cylinder barrels are an important feature of this engine. In case of excessive wear or damage due to the lack of oil or water, it is no longer necessary to make an expensive replacement of an entire cylinder block. With this construction the damaged barrel can be replaced in the field with very little expense. A further advantage gained by the use of renewable cylinder barrels is accessibility for cleaning the water jackets. The whole interior of the water jacket is exposed when the barrels are removed.

The belt pulley is mounted directly on an extension of the engine crankshaft. The extension shaft is mounted in bearings on both sides of the pulley, which will carry a very heavy drive belt strain. The pulley is located on the same side of the tractor as the steering gear so that it is in plain view of operator when lining up to a belt driven machine and the tractor can be conveniently backed up into the belt by use of its regular transmission. The pulley is 14¼ inches in diameter and rotates 1,050 R.P.M. The 6¾ inch crowned face accommodates a six inch belt. A pulley brake is provided which acts on the face of the belt pulley. It can be used to stop belt driven machinery quickly, or, when the gears are in mesh, as a road brake for the tractor. This brake is operated by the same lever that operates the clutch.

A new style of wheel construction, the open disc wheel is adopted, giving strength and rigidity without excessive weight. Spokes and felloes are formed from a single steel plate, with a flange at the edge to which the tires are riveted.

The steel tire used on drive wheels is 5/16 of an inch thick and that of the front wheels 3/16 inch. The drive



White Adjustable Electric Fixtures

Pull out pin.
Lifts reamer out
of Cylinder when
operation is completed

Pilot Control Knob
Expands Pilot Jaws
to fit Cylinder

Ratchett Wrench with
removable handle per-
mits working close to
dash board.

Lock Ring locks
blades after required
adjustment is made.

Spiral cutting edge
eliminates chatter
and produces finish

Adjusting Ring
graduated in
thousands

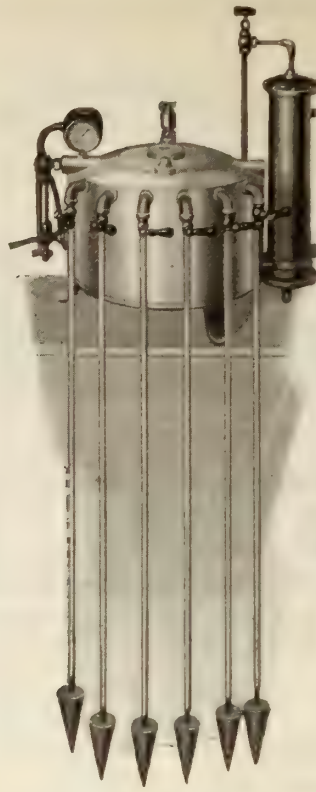
Lock Ring Wrench

Top Pilot, distributes
oil over blades, and
takes place of lower
pilot when same has
passed through Cylinder.

Thread on front of
blades takes the heavy
part of the work, and
also is a feeding device
for Reamer.

Pilot Jaws have ½
opening capacity.

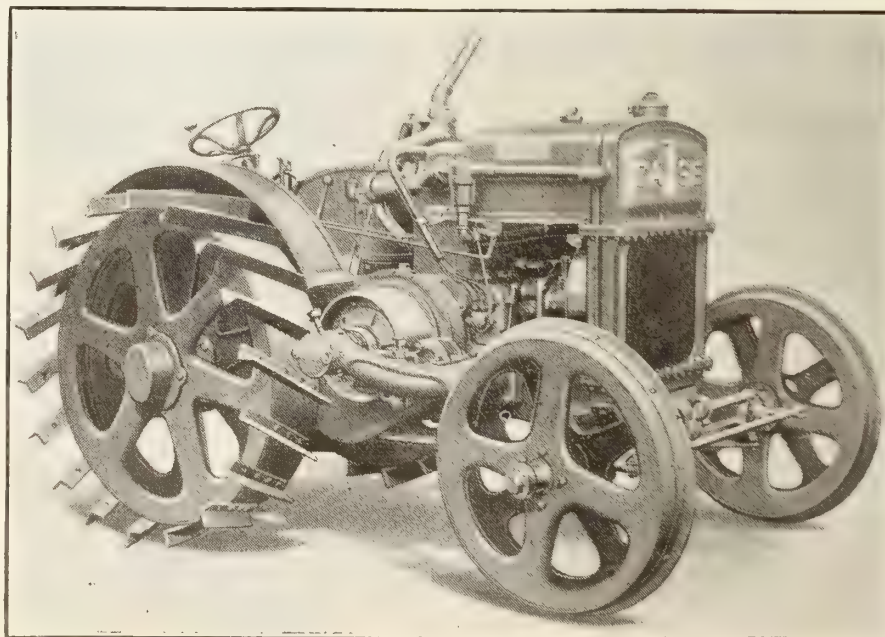
Lennard Cylinder Reamer



Sepco Electric Battery Steamer



E. A. Wind Shield Cleaner



New Case 12-20

wheels are 42 inches in diameter with a 12 inch face.

Angle iron grouters are regularly furnished. These grouters are of sufficient number and so spaced that the wheel will ride smoothly over a hard road.

SEPSCO TUBE VULCANIZER

THIS vulcanizer is electric and operates on A. C. or D. C., 110 or 220 volts. It is for vulcanizing tubes and has an operating surface of 8 x 20 in. The temperature regulation is automatic to 300 degrees Fahr., equal to 60 pounds steam pressure. Made by the Automatic Electric Heater Co.

LENNARD CYLINDER REAMER

THE Lennard cylinder reamer is made in three sizes, each size having a capacity of ½ in. Interchangeable blades may be obtained to suit the reamer, and will ream from 1 to 50 thousandths over size. A top pilot is supplied with each set of blades, while the bottom pilot expands sufficient to take care of any size of blade used in the reamer. It is graduated in 1-thousandths of an inch. The blades are made of a semi-high speed steel. Distributed by Hyslop Bros., Toronto.

WHITE ADJUSTABLE ELECTRIC FIXTURES

THESE are made in a variety of styles, sizes and finishes adapted to every requirement of the garage, whether for ceiling, wall, floor or bench attachment, etc. The floor "portables" are universally adjustable and, the makers say, afford an application of light to any desired point or working area. Made by the O. C. White Company.

E. A. ELECTRIC WIND SHIELD CLEANER

THIS WIND Shield Cleaner operates automatically from the battery current. Speed is regulated as desired and when shut off is entirely disconnected from the battery by means of a cut-out switch.

The makers say the instrument is easy to install, requires a minimum of current consumption and does not interfere with the electrical equipment. It is made by the E. A. Laboratories, Inc.

STOW FLEXIBLE RADIAL GRINDER

THIS tool was designed to fill the need for a tool to do grinding with maximum power over a large area, for the operation of abrasive wheels and wire scratch brushes, for the work on automobile bodies, etc. It is furnished in several sizes and may also be furnished for drilling. The weight and the flexible shaft is counter-balanced so that the operator is free and has the tool within easy reach and control. Made by the Stow Mfg. Co.

MILWAUKEE SPLIT RIM TOOL

THIS device is for removing tires or putting them on and handles split rims with minimum of trouble. New stiff tires or rusty rims can be handled with a saving in time. The tool fastens to the wall, work bench or stand. The two side arms grasp the rim and are operated by the spoked handle, which draws the arms in or out. Made by Milwaukee Pattern & Mfg. Co.

SEPSCO ELECTRIC BATTERY STEAMER

THE Sepco battery steamer is automatic and maintains a pressure of 15 pounds without attention. The makers say it melts tops from batteries in from 6 to 10 minutes. It is manufactured by the Automatic Electric Heater Co.

BAND EASE

THIS substance is used to prevent hardening or glazing of the transmission bands of Ford cars. Made by Mann-Sutherland Co.

NEWS—OF THE TRADE FOR THE TRADE

ALBERTA

BANFF:—The Park Motor Repair Shop is a new business opened here.

CALGARY:—Clay and Hanlon, proprietors of the Crescent Garage, Ninth Avenue West, have remodelled their garage and added some new equipment.

EDMONTON:—Lines Motors have opened new showrooms and service garage at the corner of 100th Street and 102nd Avenue. This firm relinquished the Ford agency some time ago and have taken over the distribution of Overland cars. W. E. Lines is president and general manager, H. A. Bagnall, sales manager, and F. Ross, service manager.

BRITISH COLUMBIA

VANCOUVER:—The Chevrolet Sales Company is a new concern organized here. Ellis S. Wood, formerly with the Begg Motor Co., Vancouver, has been appointed manager.

VICTORIA:—The Atkins Motor Company, distributors for Durant cars, have removed their showrooms from Collinson and Vancouver Streets and are now located at the Weiler Auto Supply House, Douglas and Broughton Streets.

VICTORIA:—Approximately \$1,500,000 will be spent on highways in British Columbia this year. Hon. W. H. Sutherland, Minister of Public Works, announced. The work includes the Pacific Highway paving in the municipality of Surrey; the Nelson-Ymir road \$80,000; Cascade-Rossland road \$230,000; Similkameen district road-work \$80,000; Columbia Valley \$62,000; Yellow Head Pass project \$68,000, etc.

MANITOBA

FOXWARREN:—S. J. Falloon, I. H. C. agent is handling trucks, tractors, threshing machines, cream separators and implements.

WINNIPEG:—Gray-Campbell, of Moose Jaw, Sask., general distributors for Gray-Dort cars, have taken over the distribution of Gray-Dort cars in Manitoba and have opened a showroom on Portage Avenue, Winnipeg, from which point they will conduct the distribution of Gray-Dort cars for the Province of Manitoba.

WINNIPEG:—A total of 2,448 automobile licenses were issued by the Province of Manitoba license department up to the end of April this year, according to statistics made public. Dealers' licenses total 244, motorcycles 465, chauffeurs 2,394, sales representatives 171, and permits 3,642. Revenue for the department so far this year amounts to \$394,104, it is stated.

ONTARIO

RIDGETOWN:—G. H. Luther has been appointed agent for Dodge cars in Highgate, Ridgetown, Thamesville and Bothwell.

KITCHENER:—Snyder and Bauman, proprietors of the City Garage have dissolved partnership. D. Snyder will conduct the business in future.

GALT:—The Highway Garage is a new service station built on the Provincial Highway by the Galt Real Estate and Loan Co. All kinds of repairs, oils, gas and accessories will be handled.

ST. THOMAS:—W. H. Dake, of the D. and B. Service Station, has purchased the interests of his partner, Mr. Bowlby, and in future will continue the business. An all-night service has been added.

HAMILTON:—Hamilton has a motor vehicle for every nine individuals of its population, according to figures compiled by Controller Davis, secretary of the Hamilton Automobile Club.

Licenses for almost 13,000 cars and motorcycles have been issued so far this year. Of this number, almost 11,000 of the licenses are for passenger automobiles, the controller stated. There are at present almost 1,800 trucks in the city and a number of motorcycles.

TORONTO:—The K. and S. Tire and Rubber Goods Co. held their annual excursion at Victoria Park, Niagara Falls, recently, when more than 600 employees with their families and friends spent a very enjoyable time.

BRANTFORD:—An optimistic prophecy, that this winter would see Brantford busier than ever before was made recently by the head of a large implement industry there. Western crop reports help to strengthen this feeling.

WINDSOR:—Watford and Sturgeon, local agents for Hudson and Essex cars, have moved to new premises at 451 Sandwich Street east. Coincidental with their moving comes announcement of the incorporation of the firm which will now be known as Border Cities Motor Sales, Ltd.

QUEBEC

MONTREAL:—Lewis Bros., 20 Beury Street, have been appointed sole distributors for Quebec, New Brunswick, Nova Scotia and Prince Edward Island, for the products of E. V. Hartford, Inc., of New York, manufacturers of Hartford shock absorbers, spring bumpers and auto jacks.

SASKATCHEWAN

SASKATOON:—Masterton Motors, of Regina, have opened a branch here.

MOOSE JAW:—A new garage and service station is being operated here by V. Elstrom and H. Esmond.

COLE MOTOR CAR CO. OPERATING 85% CAPACITY

THE COLE Motor Car Company at Indianapolis is running one hundred per cent. ahead of last year's production according to a statement issued by Mr. J. J. Cole, president and general manager of the company, and at a rate which is equal to eighty-five per cent. of capacity.

Mr. Cole is of the opinion that there will not be any summer slump this year and thinks that the demand will continue to increase during the summer and throughout the winter months.

The basis for such an opinion is the fact that the smaller dealers in the agricultural districts are ordering cars for delivery during summer months, and with the prospect of bumper crops business with them is going to be better than it has been for a year or two.

Foreign business has also picked up considerably, especially in South and Central America, Mexico and the West Indies, in which country the Cole Company is doing a substantial business.

At the first of this year, it will be remembered, the Cole Company announced that fort-two refinements had been made on the new series Cole Eighty-Ninety. Cole engineers are constantly working for the improvement of the car and figures show that the car is now being sold at a price which is below the pre-war level.

The balance sheet issued by the company on the first of May showed the Cole Motor Car Company to be in a strong financial position with assets on that date of \$3,561,629 as against current liabilities of \$327,671 and a surplus of \$2,233,958.

On May 10th the Cole Company paid a 10 per cent. dividend to all stockholders, this being the semi-annual payment and from all appearances October will see a similar distribution of profits.

CANADIAN CARS MAKE GOOD SHOWING IN BRITAIN

OFFICIAL monthly returns for the first quarter of 1922 indicate that British imports of passenger cars, trucks, and chassis are again on the increase, writes W. H. Park, secretary to the trade commissioner at London, England. The total number of passenger cars and trucks imported during this period was 2,495, valued at £461,328; chassis numbered 2,370, valued at £479,009. During the corresponding quarter of 1921 the total number of passenger cars and trucks imported amounted to 2,914, valued at £681,156; but imported chassis numbered only 933, valued at £314,863. Canada ranked first as a source for the number of finished cars and fourth with respect to chassis. France ranked second with regard to both finished cars and chassis. Italy was third for finished cars and first for chassis, while the United States was fourth in finished cars and third in chassis. Germany also made a good showing, although imports from that country were rather irregular.

DURANT MOTORS ISSUE FIRST ANNUAL REPORT

FIRST financial statement of the Durant Motors of Canada has been mailed to shareholders. The report indicates the company is enjoying a large sale for their cars, as total sales of the Durant for the months of March and April amounted to \$539,068.69. Added to this \$113,875.47 receipts from other operations makes a total revenue of \$652,944 for the period ending April 30, 1922. Shares allotted total 119,083 and netted the company the sum of \$1,190,830.

Following is the statement of receipts: Receipts from stock sales (including part paid, but unallotted subscriptions, \$1,451,834; sales of cars and parts, \$539,069; other receipts from operations, etc., \$113,875; total \$2,104,778.

A statement of disbursements shows \$45,011.94 to have been paid on account of land and buildings; \$149,762.19 for machinery and equipment; \$596,543.71 for materials and supplies.

Cash on hand amounts to \$741,783.28, and expenses of organization, etc., are given as \$261,597.

The directors in their report to shareholders have the following to say in part:

"The Durant car in Canada has met with a wonderful reception, and is now rated as one of the most popular cars in the Dominion. In the point of registrations in the city of Toronto your car has risen from sixty-fifth to third place, and in Hamilton now ranks second. Leaside plant is working to capacity, turning out four-cylinder cars in all closed and open models, and responsible agents are being appointed throughout the Dominion. Arrangements are well under way for the manufacture of the new Star car as a unit of your company. To do this it will be necessary to build an addition to the present plant as it is already taxed to capacity turning out the Durant models.

The first meeting of shareholders will be held at the head office, Leaside, on Thursday, July 6th.

WILL MAKE STEAM CAR IN WINDSOR

IF present plans go through, Windsor, Ont., will have another automobile industry add to her already large list. The Windsor Steam Motors, have opened temporary offices at 6 London St. E., and intend producing a steam car. This company is a branch of the Trask-Detroit Steamer now producing a moderately priced steam car in Detroit.

A. B. Muir is president of the Canadian concern, and until the plant is ready, it is the intention to export machines from Detroit to take care of the Canadian market. Several claims are made for this type of steam car, one being that there are less than forty moving parts in the entire mechanism, and that either gasoline, kerosene or distillate can be burned.

SUFFICIENT EXCUSE. — Cop — "You're pinched for speeding."

Copped—"What's the big idea? Doesn't that sign say 'Fine for speeding'?"—Sun Dial.

With the Manufacturers

The Auto Specialties Mfg. Co., Windsor, Ont., makers of malleable iron castings for automotive, agricultural and railroad industries, have been producing up to capacity for some months.

The Non-Freeze Battery Mfg. Company, of Simcoe, Ont., have been granted an Ontario charter. The incorporators are C. A. Austin, J. C. Austin, C. E. Innes, E. D. Holliday and D. A. Bowlby, M. D., all of Simcoe, and M. M. Smith of Woodhouse. The company is capitalized at \$75,000.

T. A. Russell, president of Willys-Overland of Canada, has been appointed a director of Stewart Scully Co., a new investment house which opened up in Toronto a few days ago. J. F. M. Stewart, who is director in the Home Bank of Canada, Dominion Steel Corporation and other concerns, is to be president of the new firm which will deal in real estate and high grade industrial issues.

The F. & H. Ball Bearings which were used extensively by motor car manufacturers in this country prior to the war, are again available, as the Jarosch Bearings Corporation of 1737 Broadway, N. Y., has been appointed sole import representative for the United States and Canada by the F. & H. factories. The New York company will maintain a complete stock of bearings in all standard sizes and types, and it is stated that immediate shipment can be made to manufacturers right from stock.

The Leyland Motors, Toronto, announce the appointment of Major J. L. Jackson as in charge of Ontario sales.

The Kemp Metal Auto Wheel Co., formerly of Toronto, have removed to Listowel where they have taken over the property of the defunct Perfect Wheels Co.

Durant Motors of Canada Ltd., Toronto, in operation on the manufacture of motor cars since March 1, announce that they are planning the erection of extensive additions to their plant. They will include two new buildings, each 400 feet long, 100 feet wide and 6 stories high. Another building for crane and storage purposes, will be 500 feet long and one storey. These additions will more than double present capacity and it is expected will be completed by Jan. 1, 1923.

The Ford Motor Company established a new monthly record in May with production of 144,469 cars, trucks and tractors in all the plants, domestic and foreign, it was announced to-day. Production was divided as follows: American Ford cars, 121,073; foreign, 7,170; Ford of Canada, 6,579; total 134,762. Tractors, American, 8,950; foreign 155; total, 9,105. Lincoln cars, 602. Grand total, 144,469. Ford Company officials said that, while they have no means of computing exactly what the June production will be, they are confident it will be far in excess of the May output.

Sell the line already half sold

Now's the Time!

to sell Melotte Cream Separator and Lister Milker.

Both needed right now and we are ready for quick deliveries.

The farmer is busy but he is smiling.

Crop prospects never looked rosier. Busy Lister agents are harvesting results:

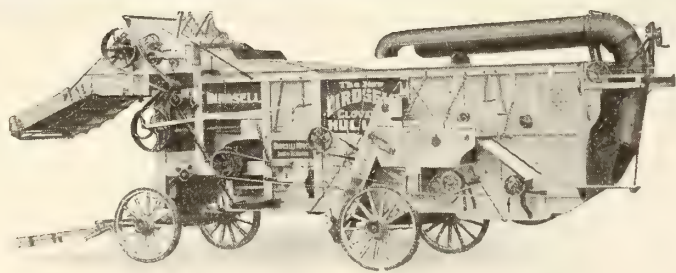
The Lister is the line the farmer knows he takes no chances on.

R. A. Lister & Company

(Canada) Limited

Toronto and Winnipeg

**Clover Seed yields good profits—
Canadian Farmers raise a large
quantity of seed yearly.**



**Good profits in hulling seed—keep the
tractor busy by pulling a Clover Huller**

MANY Farmers have idle tractors that could be made profitable by hitching to a Huller during the late fall months. Your neighborhood may need a Huller. The "Birdsell" is the best.

**BIRDSSELL-GEHL ENSILAGE CUTTERS
ANN ARBOR HAY PRESSES**

WE have them here for quick delivery, and we assist Dealers who have live prospects for sales. Ask for our traveler when you have need of help.

BIRDSSELL MANUFACTURING CO., Toronto, Canada
Foot of George Street

Dairy and Household Supplies

GETTING CREAM OF BUSINESS WITH CREAM SEPARATORS

BECAUSE of its nature a special sales drive on the cream separator is an example worthy of study by dealers specializing in mechanical-power equipment, says the Power Farming Dealer. At first thought the two are widely different but from the merchandising standpoint they run closely parallel. First, be it noted that the cream separator is machinery. It is, or it used to be considered, a rather expensive machine. It is not an indispensable machine because the skimming ladle is just as effective as it ever was in harvesting butter fat. The ladle is cheap—relatively even cheaper than hay, harness and horses.

The reasons for which cream separators are bought, that is to say, the arguments by which they are sold, have a theme applying distinctively to mechanical-power equipment. It is very doubtful whether at the present time many cream separators could be sold by arguing that they reduce the cost of skimming.

It might or might not be possible to prove such a contention. But any attention devoted to that point would be harmful to the extent that it distracted attention from the real purpose and the value of the cream separator, which is to secure a greater profit from the dairying operation of the farm by saving more butter fat, getting it and keeping it in better condition and reducing the cost of transportation to market.

With the passage of time it has been demonstrated and accepted that the justification for the cream separator lies in its positive, constructive benefit. In very large measure the same statement applies to all farm-operating equipment, and it applies with special force to power-farming equipment. Any argument as to operating costs per day or per acre is a distraction of attention and dealers who permit their thought and that of their customers to dwell on the costs of operation instead of the net profit resulting from performing the operation are permitting themselves to be misled. Perhaps the only effective way to sell power-farming equipment this season, and the right way to sell it any time is to emphasize the returns which come from saving more butter fat, thorough tillage, prompt planting, frequent fertilizing and hustling harvests, all of which mechanical power makes possible in greater measure than ever was practicable before.

NEW USE FOR CREAM SEPARATOR

THE CREAM separator, usually only a cog in the placid routine of farm life, is being utilized by one large automobile manufacturing company for the reclamation of oil used in its test department. As an aid to efficiency of production, with a consequent decrease in costs, the "stunt" is of interest to dealers.

Oil for reclamation is placed in a large reservoir, from there it is piped into two 150-gallon tanks which stand on a platform just above a special centrifugal cream separator. In the overhead tanks the oil is heated by steam to a proper temperature, after which it is allowed to settle for a period of eight hours. The fluid is then run through the cream separator, the centrifugal action of which removes practically all remaining foreign matter.

Light ends, water and other foreign substance, by means of this process, are practically eliminated from the lubricant, with the result that the reclaimed oil is very high in quality.

SASK. IMPLEMENT DEALERS MEET

THE Implement Dealers' Trade Section, held a separate session on June 6, at the annual convention of the Saskatchewan Retail Merchants Association, when many matters of importance were brought up. The chairman of the section, A. J. Humphries, of Raymore presided. The attendance was small but representative. The chairman in opening the meeting gave a short resume of the work done during the past year. He stressed the need of the support of every dealer if the section were going to attain its objects.

The meeting opened with a discussion around the obtaining of representation on the provincial executive. The appointment of the provincial committee for 1922-23 was proceeded with and the following personnel agreed upon:

Chairman, A. J. Humphries; first vice-chairman, W. J. Keller; sec. vice-chairman, H. E. Hamilton; hon. secretary, H. Rorison; treasurer, F. W. Dalzell.

The appointment of the trade section representatives on the Dominion advisory committee was considered and W. J. Keller was appointed on motion of Messrs. Dalzell and Rorison.

After discussion it was moved by H. Rorison and seconded by H. E. Hamilton: "It be brought to the attention of the provincial executive that it is considered expedient to place a tent at Regina and Saskatoon Industrial Exhibitions and an organizer or representative from the provincial office be present and some method be used to show members and prospective members what the association is endeavoring to do for the trade."

The subject of co-operation with associations other than the Provincial R. M. A. Boards was discussed at length and on motion of W. J. Keller, seconded by F. W. Dalzell: "The secretary be instructed to get in touch with the Alberta Implement Dealers' Association, and any others in existence, with a view to mutual co-operation in the matters of contracts and trade conditions, obtaining from them copies of resolutions which may have been passed, together with a general outline of their plan of campaign to improve conditions."

The question of contracts was next taken up, and a dealer gave it as his opinion that price lists should be entirely separate from the contract and it should be binding until cancelled by one party thereto, such cancellation to be properly safeguarded. He said the Ford contracts were set out in this manner. From the discussion which took place it was apparent that those present concurred with this dealer's view and it was left to the committee to handle.

A discussion was led by W. J. Keller on "over-run on listed weights." The speaker said he had frequently found that the railway weights were considerably in advance of the weights listed in price lists and contracts. As no other present had apparently given much thought to the matter, it was laid over with the understanding that those present would check their shipments for the next few months and report to the secretary.

Gratis repairs next received attention. A. J. Humphries said he felt that such repairs should be allowed for by the company's blockman and he should be the judge as to the validity of the claim for such repairs. No one present seemed to have any complaint in regards to the matter and W. J. Keller stated that in his opinion it was up to the dealer and blockman. The file was laid over.

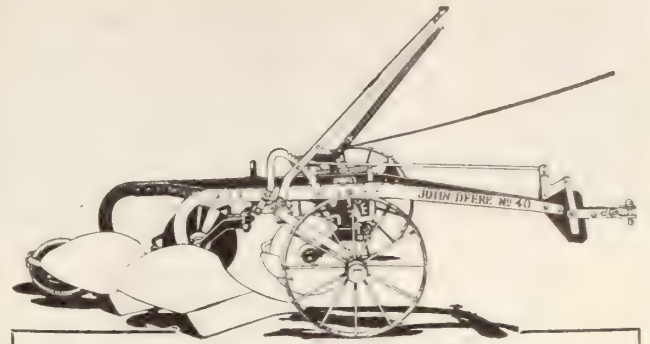


The Famous "Waterloo Boy"

12 H. P. on draw-bar; 25 H. P. on belt

The Power End

we believe to be the most practical, economical and reliable farm tractor yet designed. Six years of uniform success in giving real service has demonstrated this in the most emphatic way. It is a three-plow tractor—the handiest size of all for any size of farm. Burns kerosene with no draw-back because a special manifold, built to gasify the kerosene, converts the fuel into the proper condition for complete combustion. All the fuel is converted into power. The spark plugs are not fouled, the cylinders remain free from carbon and the lubricating oil is undiluted.



John Deere No. 40 Tractor Plow

Designed and built for the Fordson Tractor

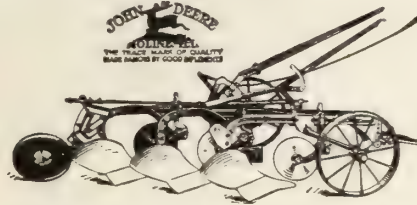
"No. 40" has important built-for-the-Fordson features possessed by no competitive plow.

NOTE the self-adjusting hitch, no other plow has it. With this the plow automatically maintains the correct line of draft as depth of plowing is varied. Bottoms run true and have the right suction at all times—no "nosing in" or "hopping out" of the soil. The clevis fluxes up and down, permitting the plow to run smoothly, to maintain even depth and keep on doing first-class work regardless of action of the tractor in passing over uneven ground. It weighs no more than the average horse-drawn sulky. Beams are guaranteed not to bend or break. Frame connections are hot-riveted extra strong.

A Great Tractor-Plow Combination

The Business End

of the combine, however, is the John Deere tractor-plow, equipped with genuine John Deere bottoms that are shaped to scour, turn and deal with the soil to the best advantage. The simple positive power lift insures a quick and high lift from the soil. No trouble from trash gathering when transporting or turning at the ends. Extra heavy beams of special John Deere steel are guaranteed not to bend or break.



John Deere No. 5 Tractor Plow

You can't start the fall with greater prospects than by getting in touch with the John Deere line. It makes the farm and consequently the dealer's job a big paying business.

JOHN DEERE MANUFACTURING COMPANY, LIMITED

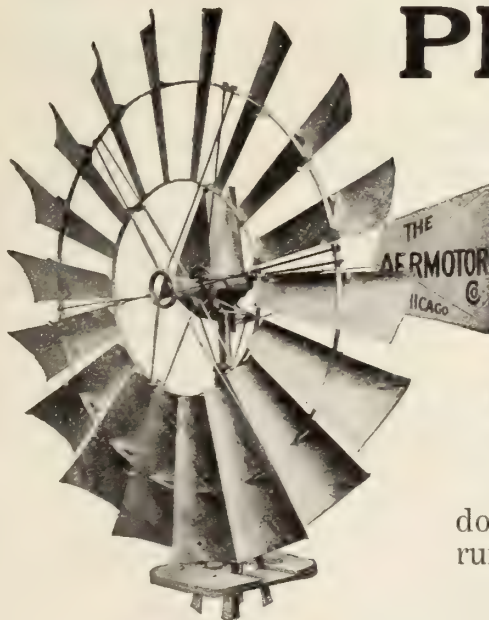
All John Deere Plows equipped with Ontario all-steel bottoms.

Welland



ONTARIO

A full line of Plows, Harrows, Cultivators, Drills, Hay Tools, Spreaders, Potato Machinery, Beet Tools, Engines, Tractors, etc.



PROFITS Every month of the year SELLING THE Auto-Oiled Aermotor

We believe that more real profit is made from the sale of Aermotors than any other line of farm equipment. The discount to the dealer is liberal and he doesn't have to spend all of his profit in running back to make the outfit satisfactory. The Auto-Oiled Aermotor, when once properly erected, requires no further attention from the dealer.

REMEMBER that the Auto-Oiled Aermotor is the Genuine double-gear, self-oiling windmill, with gears inclosed and running in oil.

Oil it once a year and it is always oiled. After 7 years of use in every part of the world, it has proven its ability to run 2 or 3 years, or even longer, with one oiling and without its ever being necessary for anyone to go on the tower.

The Aermotor gives more service, with less attention, than any other piece of machinery on the farm. The Aermotor is skilfully designed, well made, and backed by a company which has a reputation for doing things right.

If there isn't a live Aermotor dealer in your town, write us today

Aermotor Company, 2500 Roosevelt Road, Chicago, U. S. A.

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Cochran Foundry and Machine Works,
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A. B. Jardine & Co., Ltd., Hespeler, Ont.
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Leterain Sales Co., Montreal.
Motor Necessities, Ltd., 231 Somerset
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Pressure Proof Rings Co., Montreal,
Que.
Penetang Carriage Co., Penetang, Ont.,
and Toronto.
Richardson & Bureau, Montreal, Que.
Shaw Auto Salvage Parts Supply Co.,
Toronto.
Thexton Machine Wks., 736 Dundas
St. E., Toronto.

AUTOMOBILE WHEELS

Kemp Metal Auto Wheel Co., Toronto.

AUTOMOBILE TIRES

Premier Tire & Rubber Co., Ltd., To-
ronto and Beamsville, Ont.

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J. I. Case Threshing Machine Co., Inc.,
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BEEHIVE MACHINERY

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International Harvester Co., of Can.,
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Ltd., Hamilton, Ont.

BELT LACINGS

Flexible Steel Lacing Co., Chicago, Ill.,
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BRAKE LINING

Richardson & Bureau, Montreal, Que.

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CARRIAGES

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Dominion Truck Equipment Co., Ltd.,
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WINDMILL

Aermotor Company, Chicago, Ill.

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When You Sell WedgeRite Piston Rings

you sell by far the best piston ring manufactured to date. It expands both ways. The WedgeRite ring does not rotate, but adapts itself to the shape of the cylinder wall thus automatically taking up the wear. The mechanical perfection of this ring appeals to every motorist. The principle is correct.

Manufactured by

The Piston Ring Co. Limited, Montreal

The Penetang Carriage Co., Ltd.

Factory—Penetang, Ontario

Sales Office: 742 Yonge St., Toronto

**Manufacturers of
High Grade Commercial Bodies**

GASOLINE MOTORS \$50.00 and up 4 CYLINDER—4 CYCLE

20 horsepower and up, these motors are taken from high-priced automobiles, and can be used for any purpose where power is required. Hundreds of these motors in use all over Canada are giving satisfaction in motor boats, tractors, cutting boxes, sawing wood, running machinery, etc. We also carry the largest stock in Canada of slightly used parts for motor cars of all kinds.

Satisfaction or refund in full, our motto.

Shaw's Auto Salvage Part Supply
927-31 Dufferin Street
TORONTO

SAFES FOR SALE

One J. & J. Taylor Safe, inside dimensions 15 inches deep, 2 feet 6 inches wide, three feet, 11½ inches high and fitted with a built in compartment. Price \$250.00.

One J. & J. Taylor Safe 18 inches deep, two feet 9 inches wide, four feet 5 inches high, fitted with a steel compartment. Both safes are in good condition and can be bought at a price that will save considerable money to the purchaser. Price \$200.00.

BOX 100, MOTOR & TRACTOR, 153 University Ave., Toronto

"Fills Groove
and Cylinder
for the life
of the ring"



"Positive
Expansion
in both
directions"

Pat. Mar. 2, 1915, Feb. 29, 1916

PRESSURE-PROOF PISTON RINGS

TEMPORARILY, yes! 'most any piston ring will overcome oilpumping, poor compression, etc.—but for PERMANENCY there's only one ring to consider, that's the PRESSURE-PROOF. Put a trial set in the worst performing car you know of—there you'll find PROOF that they're PRESSURE-PROOF, absolutely. PRESSURE-PROOF Jr. 2-piece and PRESSURE-PROOF 3-piece rings from any of the following:

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Rice Lewis, Toronto

J. H. Ashdown Hardware Co., Winnipeg, Calgary, Saskatoon and Edmonton

Lewis Bros., Montreal

C. Kloepper, Toronto

Samuel Trees & Co., Toronto

Manufactured by

PRESSURE-PROOF RINGS, LIMITED
SHERBROOKE - - - - - QUE.

Each tire hangs alone—



Make Your Own Tire Racks with Mankey Tire Hangers

and ordinary 1 inch pipe or we will send you a complete Mankey Rack on 15 days' approval

ASK YOUR JOBBER

Hangers \$11.40 per doz. Two doz.
Rack \$37.35 f.o.b. Montreal, Toronto,
Vancouver, Winnipeg.

MOTOR NECESSITIES COMPANY
SOMERSET BLDG., WINNIPEG

Send one No. 2 Rack for 15 days' examination. I will remit \$37.35 or return the Rack at that time without further obligation.

Name

Address

Dealers, Attention!

Get our propositions on

Portable Saw-Mills,
Gang and Single Edgers.
Gasoline and Kerosene
Engines

Emery-Grinders
Water Bowls,
Plow-points, Etc.

GRAY IRON AND BRASS CASTINGS

The Cochrane Foundry & Machine Works
Tillsonburg - Ontario

BROUGHTON'S BLOWOUT BOOTS

(Formerly Steeltire Clasps)



The centre plates are now being made of Cold Rolled Steel. Cuts for Catalogues supplied on request at all good jobbers.



**THE GEO. H. BROUGHTON Co., 126 WELLINGTON ST. W.,
Toronto**

Western Dealers Claim Insufficient Protection for Sale of Oil and Gasoline

REGINA, Sask.—The handling of oils was the topic of discussion at a trade section meeting of the automotive and hardware dealers at the Saskatchewan R. M. A. convention. A resolution was brought forward from the hardware section asking oil companies to give retailers handling their commodities a fair discount. Quite a few of the companies are giving the consumer a discount of 20 per cent. as compared with the 25 per cent. discount to the trade. H. A. Stone stated that the present policy provided only a small margin of 5 per cent. between the price to the consumer and it was unfair to the retailer. W. C. Paynter, of Tantallon stated that he had great difficulty in getting rid of his stock of oils. A company after selling him oils then established a station in the same town and were selling small quantities, including 5 pound packages of grease. Another retailer expressed his views that if the oil companies were going to handle the larger sales they should not expect the retailers to handle the smaller ones such as gallon lots. A. Huck, of Vibank, suggested that the retailer refuse to handle any of the oil products and that the oil companies do their business direct.

Sell Kerosene for Cash

J. Montgomery of the Canadian Oil Company, stated that he thought under their present system the retailer was getting a fair margin of profit. They did not have to buy in large quantities as they could take their orders from their customers first and then place them with the company. Kerosene and gasoline, he contended, should be sold for cash and the failure to do this was responsible for the losses in handling this trade. V. E. Green of the Imperial Oil Company stated that his agents were instructed to do business as much as possible through the local dealers. Their agents were paid a commission of 7 per cent. when they sold direct to the consumer but were not paid this commission when the sale they solicited was booked through the local dealers. Outlining the policy of his company, Mr. Green said that the former system of handling oils had not been up to expectations as some of the retailers had been price-cutting, and as a result it had been decided in March to give the owners of tractors who bought in barrel or half barrel lots, a discount of 20 per cent. from list price. He said this had been done to meet the competition of other concerns who were selling oils of uncertain quality. Under the present system the dealer was given increasing discounts on a sliding scale according to quantity purchased and his profits would net him from 14½¢ to 20¢ a gallon which was a larger profit than they were getting on other lines when a quick turnover was taken into consideration. J. Lowden of the British American Oil Company, declared that competition forced the companies to adopt the policy of selling to the consumer in order to get business.

Making Agent a Philanthropist

One of the dealers present said that he had been getting a brand of oil at 67¢ and the price was raised to \$1.50 with a discount of 25 per cent. and he did not feel justified in charging the consumer this increase for stock purchased and this no doubt explained the price-cutting referred to by Mr. Green. Another retailer expressed his opinion that the policy of giving an agent 7 per cent. commission for selling direct to the consumer and at the same time instructing him to work through the merchant for which he would receive no commission would not work out very satisfactorily. The oil companies, he said, are trying to make the agent a

philanthropist. Jack Wood, the chairman, summing up the discussion expressed his opinion that the policy outlined was a very poor one and a very expensive method of doing business. There might be some argument for it if the farmers were going to get their oil cheaper but as this is not the case the oil companies would find that it was necessary to have merchants distribute their goods.

A committee was appointed to meet the representatives of the oil companies with a view to trying to arrive at some satisfactory arrangement.

The question was taken up with the representatives of the oil companies but they could not reach a decision. A resolution was put through to the effect that the retail members of the association considered that the practice of the oil companies in this respect was unfair to the retailers and a resolution was passed asking the companies either to discontinue to sell direct to the consumers or else provide a greater margin in the discounts.

ALEXANDER LEGGE ELECTED PRESIDENT OF I. HARVESTER CO.

AT A MEETING of the Board of Directors held June 2 to elect officers for the ensuing year, Alexander Legge was unanimously elected the Company's president. This action was taken after Harold F. McCormick had declined re-election and had nominated Mr. Legge.

Harold F. McCormick was elected chairman of the newly created executive committee. This committee was elected from the directorial body and consists also of: Cyrus H. McCormick, chairman of the Company; Alexander Legge, president; William D. McHugh, general counsel; John P. Wilson, consulting counsel; this committee is vested with the powers of the Board of Directors, when the Board is not in session. The other officers elected are: Vice-presidents, H. F. Perkins, A. E. McKinstry, and H. B. Utley; general counsel, William D. McHugh; secretary and treasurer, George A. Ranney; comptroller, W. M. Reay; consulting counsel, John P. Wilson.

Following the meeting of the Board, Cyrus H. McCormick issued this statement to the organization and the public:

"I am sure that all our organization will join with me in feeling the eminent fitness in every way of Mr. Legge for this position and the wisdom of the directors in recognizing by this election his long years of faithful and successful service."

From the inauspicious position of collector in a remote branch office to the president's chair in one of the far flung industries of the country is the story of Alexander Legge.

Alexander Legge's career has been one of hard work. It is said of him that his advance has been as steady as the passing of time. His kindly, brusque manner, say his associates, and his rugged stature—he is 6 feet 2 inches tall and built proportionately—is known to thousands of Harvester company workers.

During the war he was recognized as a leader in the War Industries board—at first the Council for National Defense. Bernard Baruch of New York was chairman of this board; Mr. Legge was vice-chairman. Immediately after the war he went to Europe and spent a time in France and Germany, where he assisted in reorganizing their industries for them.

AUTOMOBILE PLANTS MERGE

DAYTON, O.—An \$80,000,000 consolidation of manufacturers of automobiles, trucks and automobile parts, with factories in seven states, has been completed here under the name of Associated Motor Industries. Will I. Ohmer, of Dayton, is chairman of the board. The merger includes seven automobile and truck factories, in addition to motor, body, gear, ignition and other parts makers. Offices will be here.

Full speed production will be started within a few days in all plants, it was announced. Several other manufacturers of cars are being considered in the consolidation, and some additions may be announced soon, it was said. Besides the manufacturing plants involved, five assembling plants will be operated, located at Indianapolis, Boston, Louisville, Oakland, Ca., and St. Louis.

All the plants are owned outright by the consolidation, the titles being turned over in fee simple to the corporations. Including the assembly unions, 14 plants are involved. The manufacturing plants are:

National Motor Car and Vehicle Corporation, Indianapolis; Covert Gear Company, Lockport, N.Y., transmission and clutch makers; Recording and Computing Machine Company, Dayton, O., ignition, magneto, starter, battery and generator manufacturers; Jackson Motors Corporation, Jackson, Mich.; Kentucky Wagon Manufacturing Com-

pany, Louisville; Saginaw Sheet Metal Works, Saginaw, Mich.; Traffic Motor Truck Corporation, St. Louis; Murray-Tregurtha Corporation, Boston, gasoline engines, and H. F. Holbrook Company, New York, manufacturers of automobile bodies.

WHEN IT DOES NOT PAY TO RISE TOO FAR

It is irksome not to advance rapidly. It tries one's patience. It makes one sometimes feel discouraged. But the events of the last eighteen months have brought home to many that it is dangerous to rise too far, especially in abnormal times. What has happened in a great many concerns is this: During the boom period promotions were made pretty rapidly. Things moved so quickly and money was being made so easily that promotions and salary increases were not always scrutinized with care.

Then disaster came. Boards of directors ordered drastic retrenchment. In many instances outside experts were called in to recommend reorganization of forces. Their investigations revealed that certain men were drawing big salaries for doing comparatively little work and that these men often were not of calibre warranting the salaries received. When heads began to fall, the heads of such men were the first to drop. In a great many cases, their places were taken by assistants or others who had not basked in the favor of any higher-ups and who were doing a lot of work for relatively little money.

If a list could be compiled of the dismissals during the last year of men drawing salaries of from \$10,000 to \$50,000 a year, it would create a tremendous sensation.

During this same period not a few able, industrious, conscientious fellows have moved upwards to fill the places of those who rose too rapidly and too far. The law of compensation may often seem to us to operate heartbreakingly slowly, but it does operate. It is safer to be paid less than one is worth than more than one is worth. That's a thought worth keeping in mind.—Forbes Magazine.

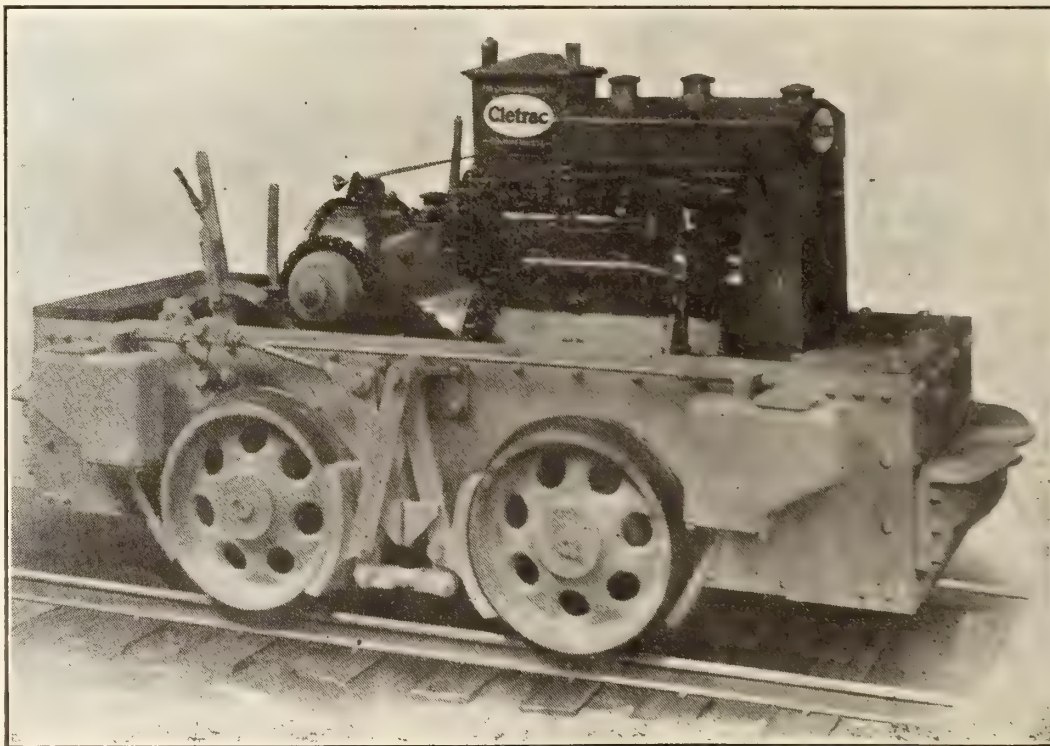
The Car Ahead.—"John, you've promised and promised to get me a run-about."

"I will, my dear, one of these days."

"Humph! Your present is always in the future."—Boston Transcript.

A Relic.—She—"What is this dark hair doing on your coat?"

He—"That is the suit I wore last year. I expect the hair has been on it ever since you were a brunette, dear-est."—Judge.



A new and unique use for a tractor power plant is here-with illustrated. It is a light industrial locomotive just announced in the Atlas Car and Mfg. Co., Cleveland. A Model F Cletrac minus its side frames, tracks, seat and steering wheel is set bodily into the sturdy frame, giving a light, inexpensive, yet powerful industrial locomotive. This power plant has been used for road construction, industrial railways and general plant hauling with good effect.

Fire! Storms! Traitors! Drunks! Poison! Pirates!

threatened Ruth Ellis, a bonny Canadian lass who went sailing amongst them on her husband's clipper ship. While her husband lies the helpless victim of *Sudi* poisoning, Ruth undertakes to win a wager in a race with other tea packets from China to London—and arrives in the Thames a scant ten minutes ahead of her closest Yankee rival.

A story to fire your blood, a compelling, stirring sea yarn entitled

"TEA FROM CHINA"

Written by Frederick Wm. Wallace and illustrated by Charles Patterson

MACLEAN'S *for* **JULY 15th**

A Big Job for Small Rivers

By J. L. RUTLEDGE

A story of the Hydro Electric Development in the Maritime Provinces, showing how much is being accomplished at St. Margaret's Bay and on the Musquash River where but little was prophesied when the schemes were originally proposed.

Co-operation in Education

By JOSEPH LISTER

A movement is on foot to bring about an amalgamation of a number of the Colleges in the Maritime Provinces. Mr. Lister points out some of the advantages which will accrue from the proposed pooling of resources.

Is "WELCOME" on Your Door Mat?

By Beatrice M. Hay Shaw

Has Canada assimilated its thousands of English war brides? Mrs. Shaw, a travelled English woman, who has lived many years in the Maritime Provinces, says: "No"—and blames the Canadians!

Bonar Law—Some Secret History

By F. Gordon Sampson

A dramatic story of a chivalrous great man, showing what happened when Bonar Law, a few months ago, declined to take advantage of a peculiar situation which might have made him Premier of Great Britain.



Capt. Frederick W. Wallace

The leading fiction feature of the July 15th number is by Frederick William Wallace, author of the "Sail Dragger," etc. It is a fast-moving adventure yarn that will carry you out of yourself, no matter how blasé you may have become. It is a compelling, stirring story which makes you almost smell the salt sea and hear the wind whistle through the sails of the careening windjammer.

Members of the "Bluenose" Crew

It is fitting that this story should be both written and illustrated by men who are widely and popularly known in the Maritime Provinces. Mr. Wallace and C. R. Patterson, who has painted the illustrations, both were members of the crew that sailed the "Bluenose" to victory in the International fishing schooner race last year.

THE JUMPED SNOWSHOES

By Theodore Roberts

OPPORTUNITY KNOCKS

By W. Townsend

OVINGTON'S BANK

By Stanley J. Weyman

Curbing the Vendor of Illicit Drugs

By Judge Emily F. Murphy

MACLEAN'S

"CANADA'S NATIONAL MAGAZINE"

Get Your Copy Today or Send \$3.00 for a Year's Subscription to MACLEAN'S MAGAZINE, 143-153 University Avenue, Toronto

A Big Attraction at Motor Shows

**Kemp
Metal
Auto
Wheel**



**Never
Breaks!
Never
Warps!**

Stands Tremendous Shock and Strains

The merits of the Kemp Metal Auto Wheel have been demonstrated to the satisfaction of the highest authorities. It has been demonstrated at shows, in the center of the automobile industry—Detroit where it proved one of the big attractions. It has been shown at London and other places and on each occasion has received the stamp of approval by men who "know."

It is almost impossible to compute the value, to us as manufacturers and to you as dealers, of this wonderful reception tendered the Kemp Auto Wheel at these big shows. Already thousands of car owners have decided definitely to equip their cars with these indestructible wheels.

The advent of the Kemp Metal Auto Wheel has taken on the nature of a vast movement for safer, more comfortable, more economical driving. The construction of this new wheel is so obviously correct that everyone is sold on it almost at first sight. Link up now with what promises to be the greatest seller in auto accessories that was ever produced.

Let us send you full particulars of what the Kemp Metal Auto Wheel is, how it is made, why it is the best wheel on the market, and why it will revolutionize the whole auto wheel industry.

SECURE AGENCY NOW

The Kemp Metal Auto Wheel Co., Limited

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Ontario

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

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TORONTO, AUGUST, 1922

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We know that SEIBERLING CORDS have made good. Their claim to superiority has been proved beyond question. We are appointing only the best Dealers to sell these outstanding Tires, Premier "Quality" Tubes and Accessories for which we are exclusive distributors. The Advertising and Selling plans of this Company are forcing the PREMIER Dealer to PREMIERSHIP in his locality for Tubes, Tires and Accessories. Write us and we will have our representative call. If you purpose visiting the Toronto Exhibition call at our booth in the Automotive Equipment Section.



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"As good as we can make them"

We are Inner Tube Specialists. At our Beamsville Factory we make Epok Inner Tubes — 555 Special Inner Tubes — White Wing Inner Tubes — Grey Wing Inner Tubes

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555 Special Inner Tubes
White Wing Inner Tubes
Grey Wing Inner Tubes
Kil-nock Auto Bearing Adjuster
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And many others. Write for list.

Premier Tire & Rubber Company Limited

116 Adelaide Street West, Toronto

30 St. John Street, Montreal

DON'T FAIL TO VISIT US AT THE EXHIBITION

The Fastest Selling Accessory At Space 85



"Ask 'em to buy"—
a Boyce Moto Meter

It is the proven ability of Boyce Moto Meters that has made them the fastest selling automobile accessory on the market to-day.

The Boyce Moto Meter is indispensable to the car owner. It warns him of over-heating fifteen minutes before it is possible to detect this danger by any other means. It gives him unfailing protection against the damages and repair bills that overheating is sure to cause.

Boyce Moto Meters are a necessity for old cars and new, summer or winter, spring and autumn. The demand for them is constant and steady.

A complete line of Moto Meters will be displayed at the Canadian National Exhibition, Space 85, Transportation Building. You are cordially invited to call and make our booth your headquarters while at the Exhibition.

BOYCE MOTO METER

"The most necessary instrument on the car"



Fall Work

This is the time of year when farmers appreciate the dependable power furnished by Case Farm Tractors.

The fall rush begins at harvest time. From then on the farmer is busy with jobs that cannot be done without mechanical power. Harvesting, fall plowing and disking, threshing, silo filling, hay and straw baling, corn husking and shredding—all power jobs—require his attention from now until snow flies, and he must either own or hire power to get them done.

There are many reasons why Case tractors are better fitted than other forms of power for this important work:

They are well adapted to farm work, both traction and belt.

They are efficient and economical to operate.

They are dependable and durable.

In Case tractors all gears, bearings and wearing surfaces are enclosed and protected from dust and dirt.

All friction surfaces either run in oil or are provided with ample lubrication by means of positive oiling devices.

All bearings are replaceable should they become worn. The engine has removable bearing shells and bushings. Practically all other bearings are roller or ball bearings of the best type and highest grade obtainable.

All Case tractors have removable cylinder barrels which can be removed in a short time at a small cost.

All dust and dirt is washed out of the air before it enters the cylinders. Every Case tractor is regularly equipped with a patented Case air washer.

The dealer who shows his prospects these Case advantages will find many farmers ready to listen and willing to buy at this time.

J. I. CASE THRESHING MACHINE COMPANY

Dept. W216

(Established 1842)

Racine

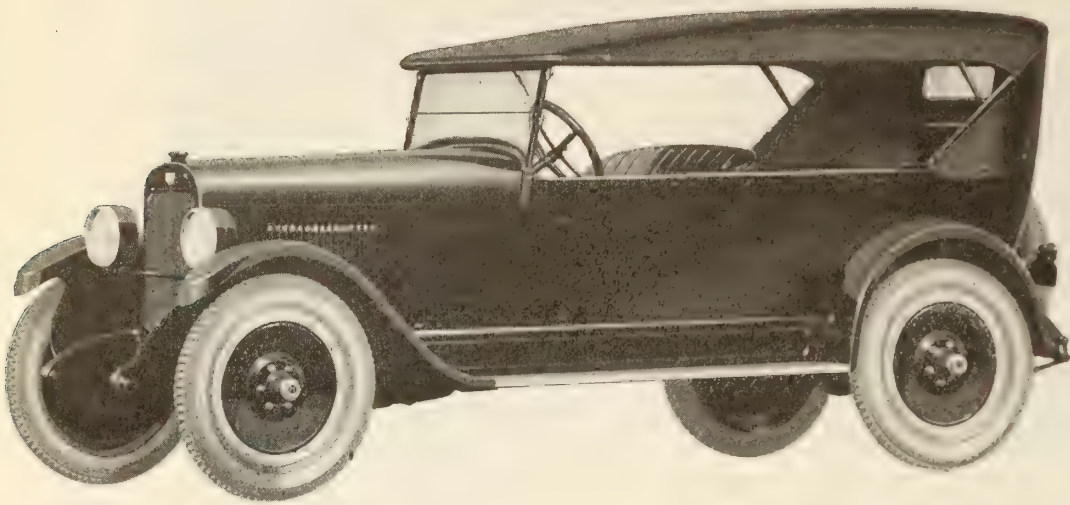
Wisconsin

Factory Branch: Toronto, Ontario.

NOTE:—Our plows and harrows are NOT the Case plows and harrows made by the J. I. Case Plow Works Co.

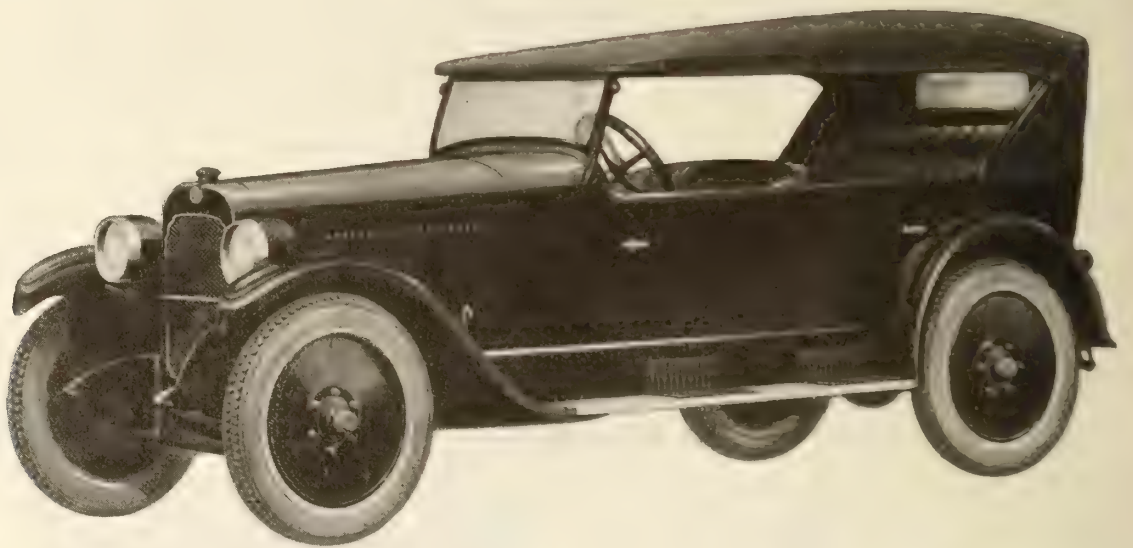


The Good
MAXWELL



THE seeker after motor car worth above the ordinary finds it in Maxwell and Chalmers cars. Only manufacturing ability of a high order, backed by entirely adequate resources, makes possible such unparalleled values.

Maxwell Motor Corporation, Detroit, Michigan
Maxwell Motor Co., of Canada, Limited, Windsor, Ont.
Chalmers Motor Car Company, Detroit, Michigan
Chalmers Motor Co. of Canada, Limited, Windsor, Ont.



The
**CHALMERS
SIX**

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL

Volume 4

TORONTO, AUGUST, 1922

Number 8

C.N.E. 1922 Motor Show To Be Biggest Yet

Already Every Inch of Space Has Been Taken for Canada's National Motor Show and Tents Will Be Necessary to House the Overflow. A Number of New Cars Will Be Displayed for the First Time. New Body Designs, Improved Appearance, and Mechanical Refinements Will Mark the 1923 Models. A Week of Auto Polo and Two Days Auto Racing are Scheduled

THE MOTOR SHOW held in connection with the Canadian National Exhibition, at Toronto, from August 26 to September 9, is one of the largest and most comprehensive annual motor shows in the world. Last year, it is estimated, three quarters of a million people visited the different automotive

Practically every well known manufacturer of automobiles, trucks, and automotive equipment will have exhibits. Every automobile and truck manufacturer will display several models. All of the newest types will be shown.

Several entirely new models will be publicly dis-

eclipse all others in beauty of line and mechanical perfection.

Automotive Equipment Displays

A record-breaking number of automotive equipment exhibits will be housed in the new Coliseum. Much interest will be attached to these exhibits in view of the fact that the Canadian Auxiliary of the Automotive Equipment Association is doing everything in its power to make them as representative and comprehensive as possible. These exhibits will be instructive in every way. The ordinary observer and car owner will see the latest in equipment. The dealer will also see this but in addition he will have ample opportunity for gleaning information on service station and repair short cuts. He can get in direct touch with members of the Automotive Equipment Association who have just voted \$60,000 to promote among the dealers better merchandising and better shop methods. Members of the association will be there to help the dealer in his merchandising and service problems.

As the necessity for properly equipped repairshops is becoming very great, the dealer will do well to devote as much time as possible to the shop equipment exhibits. Factory experts will be on hand all the time to give demonstrations and answer questions.

The trucks will also be housed in the west wing of the new Coliseum. Truck models will be shown for every conceivable commercial, agricultural and industrial use. Practically every inch of available space has been taken and truck manufacturers promise us some new and interesting developments. Several motor bus companies have taken space and some interesting bus models will be shown.

The automotive industries this year will again have



The Transportation Building Where The Automobiles Will Be Exhibited.

exhibits. From the opening day to the close of the Exhibition the Transportation building, where the cars were shown, was thronged with interested spectators. This year the show will be bigger and better than ever. Already every inch of space has been taken and two large tents will be necessary to house the overflow already booked.

More Space Provided

For some years automobile, truck and automotive equipment manufacturers have complained of the lack of exhibit space, which they declared was not expanding rapidly enough to meet the needs of Canada's enormous automotive industry. In former years the Transportation building, a whole street of tents and the twin armouries housed the Motor Show, but failed to meet the space demanded and the requirements of the manufacturers. This year the new Coliseum has brought the solution of the problem. The Transportation building will be devoted entirely to passenger cars, while the entire lower west wing of the Coliseum will be given over to trucks and automotive equipment. This has more than doubled the accommodation for the National Automotive Show, but even with this large addition applications would indicate that space will again be at a premium.

played for the first time. Many of the manufacturers have been concentrating on new body designs, improved appearance and mechanical refinements and improvements, and it is whispered about that the models to be shown at the National Motor Show will



The New Coliseum at The Exhibition Grounds, The West Wing of Which Will House the Motor Truck and Automotive Equipment Exhibits.

a day all to themselves. August 28 is Automotive Industries day and will be observed all over the fair. At the directors' luncheon on this day a large number of speakers will extol the automobile and truck. The speakers will be drawn from prominent men in the automotive industry and men high up in Canadian political and industrial life.

Auto polo will be staged in front of the Grand Stand every afternoon and evening from Saturday, Aug. 26, to Friday, September 1. Auto polo, said to be the maddest of all sports, was introduced at the Exhibition some years ago but was then banned because of its extreme danger to players and spectators alike. New methods of strengthening the cars and thus reducing the danger of loss of life and limb has convinced the Exhibition that this exciting entertainment may be introduced again with some degree of safety.

The automobile races will be held on August 26 and 28. As in past years, state the Exhibition authorities, none but professional drivers with several years' experience in dirt track racing will be allowed to compete. Some of the world's leading pilots will be entered. Sig. Haugdahl, who broke all straight-away records at Daytona Beach, Fla., last April, is expected with the same car in which he drove a mile in 19.97 seconds. Other almost equally famous drivers are also looked for, including Fred Horey, whose daring efforts won for him several events at the Exhibition track a year ago from the veteran Louis Disbrow.

Altogether the Canadian National Exhibition will provide motor exhibits and motor entertainments to satisfy the heart of the most rabid automotive fan and enthusiastic dealer.

All reports indicate that the Exhibition management and automotive manufacturers are determined to leave no stone unturned to make this year's show the greatest ever. Great care has been taken to provide ample space for exhibits and the manufacturers are determined not merely to show cars and trucks but to introduce striking displays of special bodies, novel paint jobs, stripped chassis and cutout chassis as means of drawing the crowds and starting them talking.

The Dealer's Opportunity

Every automotive dealer within reasonable traveling distance of Toronto should make it his business to visit the Motor Show. Here he will meet with the manufacturer, will learn of the latest developments in cars, equipment and service methods, and probably get some new ideas on display and merchandising. He

will also come in contact with the buying public and as he mixes with the crowd and listens to comments by interested spectators he may learn more in a few hours of what the public wants than in a whole year under ordinary business conditions.

Every progressive dealer wants to keep abreast of the times. If there are new developments he wants to know about them. He is anxious to be in a position to tell his customers and prospects of the latest thing in motordom and no better opportunity in the whole year in Canada is presented to him of acquiring this knowledge than a few days spent at the Canadian National Motor Show.

List of Exhibitors

The following is a list of exhibitors who have to date taken space; as it is still more than two weeks away from the opening day this list will be considerably augmented:

Adams & Elting Co., Toronto.
Anglo Oil Co., Ltd., Toronto.
A. C. Spark Plug Co., Flint, Mich.
Booth Coulter Copper & Brass Co., Ltd., Toronto.
W. D. Beath & Son, Ltd., Toronto.
Brown Engineering Corp., Ltd., Toronto.
Black Donald Graphite Co., Ltd., Calabogie, Ont.
The Moto Meter Co. of Canada, Ltd., Hamilton.
Bar-Rex Co., Toronto.
Black & Decker Mfg. Co., Montreal.
S. F. Bowser Co., Ltd., Toronto.
Geo. H. Broughton Co., Toronto.
Canadian Oil Companies, Ltd., Toronto.
Canada Vulcanizer & Equipment Co., Ltd., London.
Can. Tank & Pump Co., Ltd., Toronto.
The Can. Raybestos Co., Ltd., Peterborough.
B. J. Coghlin Co., Ltd., Montreal.
Can. General Electric Co., Toronto.
Cuttin & Foster Ltd., Toronto.
Dominion Battery Co., Ltd., Toronto.
Henry Engineering Co., Toronto.
Hercules Bumpers Ltd., Toronto.
Hyslop Bros., Ltd., Toronto.
Imperial Oil Co., Ltd., Toronto.
Kemp Metal Auto Wheel Co., Ltd., Listowel.
Knight Mfg. Co., Hamilton.
John Millen & Son, Ltd., Toronto.
Motor Sundries Corp., Ltd., Toronto.
H. L. MacMillan, Toronto.
Mack Storage Battery Co. of Canada, Toronto.
McQuay-Norris Mfg. Co. of Canada, Ltd., Toronto.
V. O. Phillips & Sons, Ltd., Kitchener, Ont.
Prest-O-Lite Co. of Canada, Ltd., Toronto.

Russell Gear & Machine Co., Ltd., Toronto.
A. Schrader & Son, Inc., Toronto.
R. C. Todd Co., Ltd., Toronto.
Spaco Spring Co., Ltd., Toronto.
The Rollaway Motor Co., Toledo, Ohio.
Alemite Product Co. of Canada, Ltd., Belleville, Ont.
J. W. Wilson, Toronto.
Toronto Tiltlok Scales, Toronto.
Peerless Bumper & Accessories, Ltd., Toronto.
M. J. Maloney, New Orleans, La.
Hall Carburetor Co., Toronto.
Gilbert & Barker Mfg. Co., Toronto.
Cleveland Pneumatic Tool Co., Toronto.
Armstrong & Kitchen, Toronto.
Oak Tire & Rubber Co., Ltd., Toronto.
Aero Cushion Inner Tire Co., Ltd., Wingham.
The V.D.L. Rubber Corp., Ltd., Toronto.
North British Rubber Co., Ltd., Toronto.

Austin Motor Car Co., Birmingham, England.
Automobile and Supply, Toronto.
Bailey-Drummond Motor Co., Toronto.
British and American Motors, Toronto.
Chevrolet Motor Co., Oshawa.
Chalmers Motor Co. of Canada, Windsor.
Commercial Car Limited, Toronto.
Durant Motors Limited, Toronto.
Dominion Automobile Co., Toronto.
Earl Motors, Ltd., Jackson, Mich.
Federal Motor Truck, Toronto.
Ford Motor Car Co., Toronto.
Gottfriedsen Joyce Corp., Walkerville, Ont.
Gray Dort Motors, Chatham, Ont.
Hyslop Bros., Toronto.
International Harvester Co., Chatham, Ont.
Leyland Motors Co., Toronto.
Maxwell Motor Co. of Canada, Windsor, Ont.
McLaughlin Motor Car Co., Toronto.
Moon Motor Sales, Toronto.
Nash Motor Sales Co., Toronto.
National Steel Car Co., Hamilton, Ont.
Packard Motor Car Co., Toronto.
Pierce Arrow Motor Car Co., Toronto.
Republic Motor Truck Co., Toronto.
Ruggles Motor Truck Co., London, Ont.
Reo Motor Car Co., Lansing, Mich.
Studebaker Corp., Walkerville, Ont.
Traffic Motor Truck Co., Toronto.
Vauxhall Motors, Ltd., Toronto.
Willys-Overland, Ltd., Toronto.
White Co., Ltd., Toronto.
Goodyear Tire and Rubber Co., Toronto.
Dunlop Tire and Rubber Co., Toronto.
Gutta Percha Tire and Rubber Co., Toronto.
Dominion Rubber Systems, Toronto.

Movie Shows the Way To Larger Profits

This Is the Story of "Shop Profits," the New Film Developed by the Automotive Equipment Association and Designed To Show How Dealer's Service Station or Garageman's Shop Can Make More Money Through the Application of Proper Methods of Record Keeping and Selling and Modern Equipment

IF THE automotive industry is to prosper and develop, the dealers must make more money. This fact has been brought home to the manufacturers and jobbers of automotive equipment and shop tools and they set out to help remedy the situation so far as it lies in their power.

The Automotive Equipment Association, which represents these manufacturers and jobbers, believes that the best man to help the dealer make more money is the dealer himself. The association members are convinced once the dealers are shown how to merchandise their goods and manage their businesses properly there will be no reason to complain of lack of profits.

The "Ask 'em to Buy" campaign launched last year and the "Shop Profits" plan this year is the Automotive Equipment Association's contribution to the dealers' struggle for more profits, and to the end that there may be a greater automotive industry.

The plan this year, which was fully explained in our last issue, again includes a film, "Shop Profits." This film is designed to show how the dealer's service station or garageman's shop can make more money through the application of proper methods of record keeping and selling and modern equipment. It covers many phases of shop operation in detail.

TOM CRAWFORD, an aggressive young garage owner who has built up a good repair business, is the hero of the story. He knows the mechanical end of his business thoroughly, is conscientious, turns

out good work and delivers it punctually. Although he gets plenty to do he is dissatisfied and disappointed to find at the end of each month he has made only a living.

With a business the size of his, he is convinced he should be making a good profit and building up a banking account against the evil day. He gives the matter serious thought and decides that he could do a greater volume of business and add appreciably to his profits if he hired more men. He hires two extra men and is able to provide them with lots of work, but is forced to admit at the end of a couple of months that, in spite of these extra men and the additional work he has done, his bank account refuses to grow.

He is much perplexed and tries to figure it all out. He sits down and makes a serious attempt to discover where the difficulty lies. In the midst of his perplexity he is visited by a salesman from one of the jobbing houses he patronizes. This salesman is an old friend and asks, "What are you doing, counting your profits?" "Profits!" says Tom; "no such animal around here." The salesman volunteers to help Tom check up things, and, if possible, solve the problem and remove the obstacles in the way.

EARLY in the checking they discover that the garageman has no record of his expenses and has no way of figuring out the cost of an hour of labor in his shop. His overhead is an unknown quantity and his trousers pocket is his cash register. After

some discussion the salesman persuades Tom that he should employ a bookkeeper. Tom doesn't quite see the necessity of a bookkeeper but he decides to try out the idea, and to this end calls up a friend of his named Higgins, a bookkeeper employed by another concern. Considerably interested Higgins comes over to discuss Tom's requirements.

The situation is gone over thoroughly by Tom and Higgins and they decide finally that a system can be worked out that will permit Tom to keep records of the daily transactions that can be entered by Higgins in his spare time in the evenings.

A number of other things are discovered by Tom and the salesman when checking up, that cause them to wonder why, instead of making a profit, Tom was not submerged altogether.

Tom's stock room is much in need of attention. He has very few bins, and the few he has are not labeled, but filled with a miscellaneous collection of units that make it necessary for a mechanic to search through several bins, or perhaps on the floor, to find the particular part needed. This is responsible for much lost time.

TOM'S system of keeping track of tools is very haphazard. He has no tool room, and when a job is finished the men throw the tools on the bench or on the floor, with the inevitable result that a lot of them are lost and broken. Tom's bills for replacing lost tools are very high. Then he has no trays in which to put dismantled parts, so that small parts

"STILLS" FROM THE FILM "SHOP PROFITS"



2
Bob, the jobber salesman, asks to see Tom's "books" and is informing Tom that in this book many items are marked "not paid."

are often lost or become dirty and gritty, necessitating their being washed and greased before they can be put back in the car.

The automotive equipment department like that of many other dealers is sadly neglected. Tom has a show case, but has been so busy with his shop work



3
Higgins, a bookkeeper for a neighboring firm, comes in at Tom's invitation and discloses the sad story. In regard to item after item he informs Tom: "And YOU paid for THAT!" The story of the lost profits.

that he has had no time to fix it up. It is found by the salesman back in a corner filled with tools and a miscellaneous collection of old junk. "Tom," he says, "you should clean up this case and fill it with a display. You know, it helps to 'ask 'em to buy.'"

A deep impression has been made on Tom by the things he has found just by sitting back and taking a good look at his own shop. He immediately gets busy and puts his men to work building a small tool room and straightening up the stock room.

Tom is presented a few nights later with a statement which Higgins has prepared. It shows among other things that while he has paid his mechanics for 4,992 hours of labor he has billed his car owners with only 4,056 hours, leaving 936 hours to be charged to shop overhead. This, together with his rent, light, power bills and other expenses, gives Tom an overhead of \$2,167.25, which explains pretty clearly where a lot of the profits are going and shows him where to look for the leaks. Tom is convinced of the value of keeping books.

AS IN the case of many dealers, Tom's uncollected accounts were eating into his profits seriously. This situation in itself was bad enough, but it was made more serious by being underrated. With the careless hap-hazard system employed by Tom, if a customer didn't pay a bill it simply meant that Tom paid it for him. After studying Higgins' statement and faced with the figures representing several bad accounts the value of asking 'em to pay is brought home to Tom.

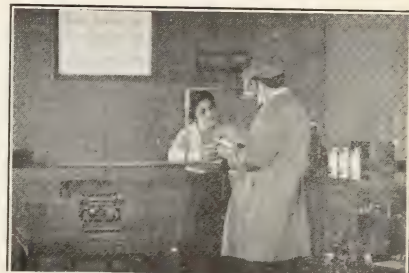
By this time the necessity for installing some kind of system that will take care of every department in Tom's business is recognized and after a few weeks of hard work he has his shop pretty well systematized. Things begin to look up. The leaks



4
This is the all-steel stockroom in the new building which "Shop Profits" built for Tom.

are discovered and plans are made to stop them. His employers are trained to ask 'em to buy and a large volume of profitable business is brought in that adds nothing to Tom's overhead.

After a time when Tom is considering the advisability of extending his recent premises or moving into new quarters, the salesman drifts back into the picture and takes Tom over to see Dan Morgan who put the "Ask 'em to Buy" idea across successfully. Dan has a lot of surprises for Tom. He has applied the flat rate system of charging for repairs and has succeeded so well with it that Tom decides that the most profitable way of doing business in the shop is to have the equipment that will make it possible for him to do the job in the shortest time and fix prices and control his profits by the job. With such system and equipment Tom is convinced that not only will his profits grow but that his customers will be better satisfied.



5
Tom's customers, in his final establishment, pay cash and beside the cashier's window is a show case which does profitable duty "Asking 'em to Buy."



1
This is Tom Crawford, the garageman. He hires more men, and works hard, but still his "pants pocket bank" fails to fill up with profits.

Sales Contest Sells 92 Cars In Month

This Story Tells How Dominion Motors of Edmonton, Alta., Developed a Highly Organized Sales Force and Kept It One Hundred Per Cent. Efficient. "Service With Sales" Is Their Motto and Sales Contests are Features in Their Selling Policy

By J. R. ASH

Edmonton is not yet a large city, as cities go, for its population is but 60,000, which fact makes the successful sales effort of the Dominion Motors, Ltd., all the more remarkable. The firm mentioned, moreover, had been conducting business in Edmonton but a short time before the selling campaign was launched. On March 4, 1922, the Dominion Motors opened its office; toward the end of April the contest was begun. It continued until May 31.

What, then, is the secret of the remarkable achievements of this firm? Well, S. B. Stonehouse, general manager of the concern, attributes the success attained mainly to the fact that a highly efficient type of salesman is employed, and a closely organized system of sales effort promoted. Archie Wigle, the popular sales manager of the company, supports his contentions.

While this is one of the main reasons for success, the officials of the Dominion Motors also realize the important part played by the general policy of the

firm, which is explained most appropriately in their motto: "Service with Sales." Acting upon the belief that a satisfied customer is the best possible advertisement, it has always been the aim of this concern to take just as much interest in and pay as much attention to the man who has purchased a car as the man who represents a prospective sale.

The salesmen have been instructed to keep constantly in touch with all persons to whom they have sold cars, to assist them in whatever way possible, and to make them feel that the firm's interest does not cease when the man's signature on the dotted line is secured. Coupled with and in support of this system is an efficient service department, prepared to attend to all the needs of the motorist.

Thus far, the firm has found this particular policy well worth-while, for in many cases purchasers have suggested prospective automobile buyers, and have by their recommendations been largely instrumental in completing the sale of other cars.

But to return to the system of sales organization: Under the direction of the sales manager, Mr. Wigle, there are nine salesmen, who confine their efforts

IN probably no other line of endeavor does the science of salesmanship assume quite so dominant an aspect as in the automobile industry. With scores of competing makes of cars, each with its points of merit and appeal, congesting the market in every important centre, the skill demanded in order that any particular car may be popularized and made salable is of a high quality.

Many varied schemes aiming to promote the sale of some special type of automobile have been advanced; many ideas have proven fruitful. And perhaps, therefore, something may be learned from a highly successful sales contest recently staged by the Dominion Motors, Ltd., of Edmonton, Alberta.

Conducted in accordance with certain definite plans and policies, this particular contest achieved the distinction of establishing a record for any city west of Winnipeg in the sale of Ford cars. In the month of May, 1922, ninety-two new Fords and over sixty used automobiles were sold by the nine salesmen who participated in the contest. One hundred dollars was offered as a first prize, while several other prizes of lower denomination were also given.

DAILY WEEKLY MONTHLY YEARLY

SALESMAN	Mon Tues Wed Thur Fri Sat							1 2 3 4				STANDARD COUNTRY TOUR ROAD CHAS. TRUCK TOTAL										STANDARD COUNTRY TOUR ROAD CHAS. TRUCK TOTAL										TORONTO FAIR CONTEST		
	N	U	N	U	N	U	N	N	N	N	N	10	9	60	1	1	8	N	U	50	52	331	35	30	N	U	15	10	14	10	2	2	46	15
Conn R.	2									3	3									8	2	2	12										16	8
Conn W.C.										1	2	1								4	1	2	9										15	10
Donnelly F.										4	1	2	1							2	2	11	14	10	2	2							46	15
Husel R.P.	1									1	1	2	1							5	2	2	14	12	1	6							37	13
Martin E.H.			1							3	2	3								3	2		6	2									7	6
Meneray W.S.										1	1	2			1					3	2												10	8
Mix J.H.	1									3	4	1	2							5	2	1	7										5	4
Yeomans F.		1								6	3	1	5	4						10	1	3	20	3									28	21
Luke A.C.												1	1	2								2											2	5
Orcutt F.J.										1		1	2	1						2			2										1	5
House	1									5	3	4	1	6	1					6	3	2	38	6	1	2							57	35
TOTAL										27	17	14	15	21	9					4	4	38	10										28	121

SALESMAN	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TORONTO FAIR CONTEST																					
	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U	N	U
Yeomans			5	2		3	5																											
Donnelly			3			5	1																											
Husel						6	1																											
Meneray						1	1																											
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Luke																																		
House																																		
TOTAL																																		
			5	1		12	15				24	13																						
			9	3		24	21				72	40																						

CLOSES AUG 15TH

WHO WILL IT BE?

LET'S GO!

WATCH RESULTS

This is the chart used by the Dominion Motors in connection with their sales contest. It is in the form of a blackboard which is hung upon the walls of the office. It records all sales within a two-year period and registers progress from day to day during a contest. "N" means new car, "U," means used car. "House" means sales made by the office.

chiefly to the city and its immediate vicinity.

System of Sales Organization

A "block" system is used. Which means that the city is divided into districts, their size determined by the population in each particular section, and each salesman is made responsible for a certain district. He may, if necessary, make sales in the territory assigned to any one of his fellow-salesmen, but he must see that his own territory is thoroughly covered.

A map of Edmonton and the surrounding district hangs in the firm's general office, and upon this each salesman's section is marked. Pins of varied colors are used to designate the success of the various salesmen, a pin of the color assigned to the man who made the sale being inserted in the map at a place representing the part of the city where each car is sold. If it is found that a certain salesman has quite a number of pins of another color than his own inserted in his portion of the map, it becomes known that he has not covered his territory thoroughly, and steps are taken to have this condition remedied.

A sales meeting is held in the firm's office every morning, and it is imperative that all salesmen attend. During the contest, loss of one point was involved if a salesman arrived late at the regular morning sales meeting. The sales manager talks over with the salesmen the problems that arise, and greater efficiency is added in this way to the sales effort put forth.

Success in selling automobiles, as in the case of any other manufacture, depends largely upon the way in which the prospective customer is approached, and upon how the claims of the firm are placed before him. The system adopted by the Dominion Motors, in their successful contest—and, as a matter of fact, in the course of their regular business operations as well—briefly is this:

The salesman, upon discovering a prospect, reports to the office the particular experiences he had in trying to effect a sale, and gives his general impressions. A prospect card is filled out by the salesman, giving details concerning resistance to sale, date arranged for second interview, etc., and offering certain



S. B. STONEHOUSE,
General Manager Dominion Motors.

remarks in regard to how the prospect should be sold. This is used by the salesmen as a card index of all prospects until sales are completed, after which it is utilized as a service record.

The Dominion Motors believe in adapting their literature and correspondence to the occupation and general personality of the prospect, for this enters largely into the determination of just how the sale should be pressed. A letter to a farmer, for instance, would be of an entirely dissimilar type, to that sent to, say, a banker. Nothing of a stereotyped nature is used. The requirements of the prospect are taken into consideration, and the letters which are sent him concentrate upon the sale of some particular model of car, or of truck, as the case may be.

The letter is followed soon afterward by another visit from the salesman.

Circulars are not used much by the Dominion Motors, a few of the regular pamphlets only being distributed. The firm advertises regularly in the daily papers, however, though the nature of its advertisements is not particularly spectacular as a rule. So far as the sales contest referred to is concerned, it might be interesting to note, too, that no particular mention of this proposition was made to the public during its progress. The main object of the contest, of course, was to serve as an incentive to the salesmen to go after bigger results.

Points were determined as follows:

Open model car (new sale), 3 points; Open model (when car taken in trade), 2 points; Truck, (regardless of whether a straight sale or a trade-in), 3 points; Closed cars, (new sale), 5 points; Closed cars, (with trade-in), 4 points; All used Fords, 2 points; Used cars, other makes, 4 points.

(The idea of awarding more points for the sale of used cars of other makes than the Ford, of course, was to avoid getting a large stock of these "off-line" cars.)

The salesman who emerged victorious from the contest, earned a total of 94 points.

Because of the success of the former contest, the Dominion Motors now have a similar competition in progress, the prize in this instance being a trip to the Toronto exhibition, and an inspection of the Ford factories at Detroit and Ford, Ontario, as a guest of the management, all expenses paid. At present, there is a keen race for the honor.

Chart Records Progress of Contest

A rather unique chart has been evolved by the firm for recording all sales made within a two year period. It serves, also, to register the progress made from day to day during a contest. Both Mr. Stonehouse, the general manager, and Mr. Wigle, the sales manager, state that this system has a very stimulating effect upon the salesmen in their efforts, since they are able to notice the results of their work each day during an extended period.

The chart is a blackboard one, and is hung upon the walls of the office. A facsimile is published herewith.

Just as a concluding observation, it might be stated that, according to the manager, the Dominion Motors is not endeavoring to sell cars from its office. Rather is it being urged that the salesmen cover their territory so thoroughly that no prospect is required to come to the firm to buy an automobile.

McLaughlin-Buick for 1923 Shows Many Changes

THE McLaughlin-Buick line as announced recently, and which will be shown for the first time in Canada at the Canadian National Exhibition motor show, will consist of fourteen passenger car models on the six and four-cylinder chassis, and the four special delivery truck. Two new passenger car bodies are shown; these are touring sedans on both the six and four-cylinder chassis. The special delivery truck is mounted on the four-cylinder chassis.

While this is, generally speaking, the same line which was on the market during 1922 there are a great many detail changes, both in the chassis and the bodies and some of them of a major character. The sport models announced some months ago have been made standard in the new line. Material changes have been made in appearance and the mechanical changes are designed to promote durability, silence and absence of minor mechanical difficulties. With the addition of the new bodies included recently the McLaughlin line offers a choice of new bodies on the six-cylinder chassis, which is made in two wheelbases to accommodate the different body styles, five bodies on the standard four-cylinder chassis, which is made

in one wheelbase, and six body choices on the special delivery truck models mounted on the four-cylinder chassis.

All of the six-cylinder models have been greatly improved in appearance, comfort and durability, and have been lowered approximately three inches. The last feature has been accomplished by a modification of the spring suspension by which the offset of the cantilever spring has been increased four inches, making the forward end of the spring fourteen inches longer than the rear.

A series of changes which has resulted in the underwriters' insurance rating of class A, has been obtained by fitting a transmission lock, a drip bowl under the carburetor, extra clips on the gasoline feed line and tail lamp wires and flexible steel covers for the three wires leading from the generator to the switch and the rounding of corners on all covers and wires.

The six-cylinder engine has been improved by lengthening the pistons one-half inch above the wrist pin, lengthening the connecting rod 1 3/16 in. and raising the entire block by the amount corresponding to the sum of these two, or 1 1/16 in., so that the

compression remains the same with the longer piston and connecting rod. This has been done to minimize piston slap, etc. The new cylinders are machined with a tapered relief which will tend to increase the life of the cylinders. The guide ring at the bottom of the piston has been eliminated, and the pistons no longer overrun below the bottom of the cylinders at the lowest point of the stroke.

To overcome the natural annealing process which takes place in the part of the casting surrounded by water jackets, the cylinder bores have been chilled.

The crankshaft is now 2 1/4 in. in diameter. Individual pressure feeds are now brought from the oiling system to the centre main bearing. The oil troughs are covered to insure a supply of lubricant and to make the oiling of the piston more positive at high speeds.

Improvement in Valve Action

In order to eliminate the varying clearance, due to expansion, in the valve system, a combination push rod of aluminum and steel is now being used, so that the valve will have about the same clearance from zero to boiling point. The lower portion of the push

rod is aluminum and the upper portion is steel. The aluminum, on account of its greater co-efficient of expansion, is employed to give a more rapid expansion to the push rods so that the expansion of the parts of the motor which tend to lift the rocker arms away from the push rod and to increase the clearance will be equalized by the expansion in the push rod itself. Felt has been placed around the valve stems inside the valve springs to carry oil for the valve stems and guides.

By changing some of the material used in the clutch greater durability has been secured. The material in the clutch hub, for instance, is now drop-forged steel in place of malleable iron. The splines are now case hardened and ground and the clutch plates are fitted to closer limits on the splines and pins. This will take out rattles and eliminate much of the wear.

Electrical System Changes

There are also some changes in the electrical system. The motor-generator has been re-designed in regard to its electrical characteristics to give it a higher charging rate. The brushes and brush holders have also been altered to eliminate squeak and more accessible oilers are provided for the bearing. The brush holder is now a die casting with a bronze spring member which has sufficient give to eliminate the chatter which was found to be the foundation of squeaking. A new type of silent over-running generator clutch is employed and spiral teeth are now used as the starting gears to prevent excessive noise when cranking the engine.

The rear axles have been modified in some respects. On models 44 and 45, the three-passenger roadster and the five-passenger touring car, the brakes have been increased from 12 in. to 14 in., which now gives the same size brakes on all six-cylinder models. On the front axle, new style bushings are used in the steering knuckles and arms. These bushings are hard burnished bronze.

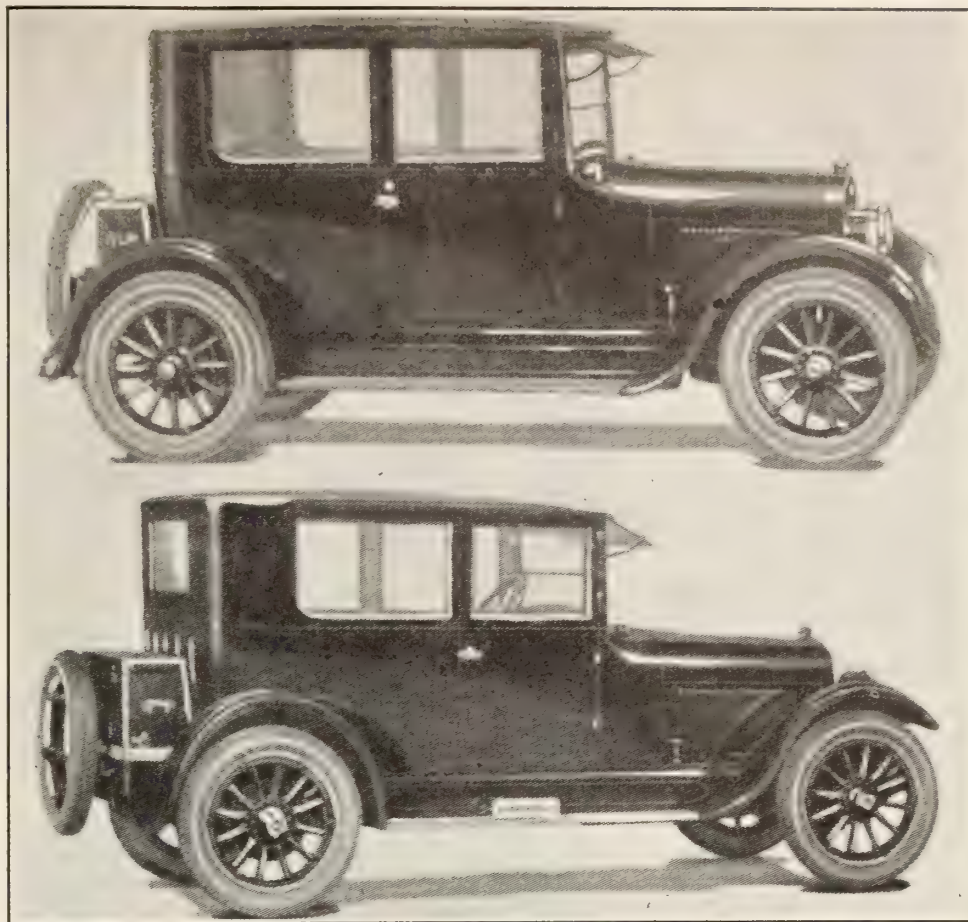
New departure ball bearings are now used on the differential in place of the roller type formerly employed. The rear axle gear ratios are now 4.4 to 1 on all of the open cars and on the five-passenger sedan, and 4.7 to 1 on the remaining models on the six-cylinder chassis.

The strut rods on model 45 have been increased from 5/8 in. to 11/16 in. in diameter and the truss rods on the model 45 increased from 1/2 to 9/16 in. in diameter. The frame has been stiffened considerably by increasing the thickness of the stock in the side members from 5/32 to 3/16 in.

As mentioned at the beginning of this article, the spring suspension has been altered and in addition to the change in location of the spring hanger, the main plate and all the front springs of the six-cylinder model have been changed from carbon steel to vanadium. The steering gear housing has been changed to bring the clamp boss on top which also brings the slots on top and prevents leakage of grease.

Reinforcement to the radiator shell on the inside has been made and the core support angles have been increased in thickness and the bolts made larger. On the three-passenger roadster and five-passenger phaeton 32 x 4 in. cord tires are used, and on the five-passenger touring sedan, the five-passenger sedan, the four-passenger coupe, seven-passenger phaeton and seven-passenger sedan, the tires are 33 x 4 1/2 in. cord. The tire size on the sport model is 32 x 4 1/2 in.

The modifications and improvements in the four-



The upper car is the new 5-pas. model McLaughlin-Buick touring-sedan on the four-cylinder chassis, and the lower is the 5-pas. touring-sedan on the six cylinder.

cylinder chassis parallel almost exactly the changes in the six. The appearance of the entire four-cylinder line, generally speaking, has been improved by redesigning the bodies and tops. The radiator has been raised 1 1/4 in., the cowl lengthened 3 in. and the hood line from the radiator to the windshield has been lowered 2 1/2 in. and a kick-up has been placed in the frame over the rear axle which permits the rear end of the car to be lowered. The new model 35 car, which is the standard phaeton design, is 5 in. lower than its predecessors and the complete line of cars is lowered.

Certain changes in body lines are common to all bodies in the line and a few detail changes on each particular body model which apply to that body alone. Nickel beading is used on the cowl at the rear end of the hood on all of the six-cylinder models. Nickel beading is also used around the radiator cores on all models except the sport. The sunshade design has been revised. It is of solid sheet metal panel with die-cast ends and is covered with imitation leather. The back lights in the bodies have been reduced in size and the rear quarter light frames have rounded (Continued on page 8)

Earl Announces New Closed Model

EARL MOTORS, Inc., of Jackson, Michigan, announce a new closed car, to be known as the Earl Cabriole. While this new car is patterned after the Brougham, and retains practically all of its refinements and comforts, its cost, owing to quantity production and careful planning, is materially reduced. The Cabriole will list at \$1,335.00 f.o.b. Jackson.

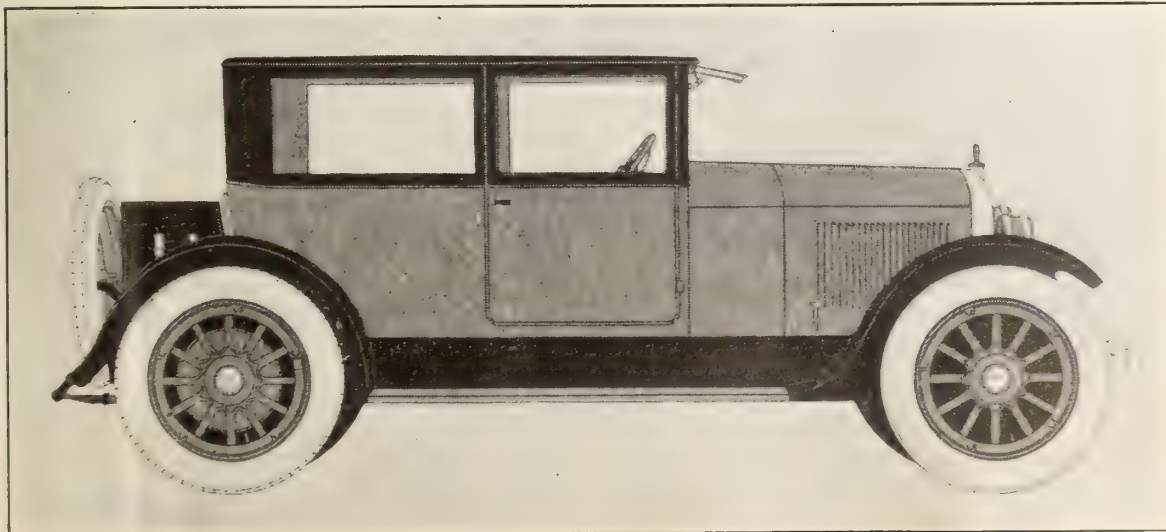
It is essentially an all-weather car. The windshield is of the standard Earl one-piece construction, and swings either in or out, thereby affording ample ventilation. The especially designed rain and sun visor, which is standard equipment, gives the much-needed protection from rain and sun.

The upholstery is of Spanish leather, in a rich grey tone, and the interior finish is of the same material. Other standard equipment includes dome light, windshield wiper, and complete set of tools. The top and sides of the rear tonneau are covered with black duratex fabric, which is weather-proof, easily cleaned and very smart appearing in contrast with the painted body panels. The body color is a beautiful special Earl blue, which gives the Cabriole an air of real distinction. The fenders and chassis are glossy black enameled.

At the rear is a platform for a trunk, protected with maple slats in natural finish. The rear body panel is also protected by nicked slat irons; and at slight extra cost, a trunk is furnished. The trunk contains two large suitcases and a hat box. Besides the trunk, special equipment includes Boyce motometer, and front bumper, these three items being furnished at extra cost.

The Cabriole weighs only 2,780 pounds, is roomy and comfortable, with ample body dimensions and a low center of gravity. Extra long 56 inch rear springs and rigid frame, with 7 inch side channels, and five cross members, form a foundation for the comfort of the deep seat cushions.

The new model is one inch less than fourteen feet in length overall; and while the height is only 6 feet 2 inches, the head room inside is ample—37 inches from seat cushion to top lining. There is also ample leg room in the front tonneau—53 inches being the inside length. For convenience in entering, the front seats tilt forward, and the backs fold down. The front seats, themselves, are 18 inches wide, 18 inches deep and 12 inches from the floor, with a comfortable 3 inch pitch. The rear seat, which is 45 1/2 inches wide, will seat three persons without crowding. This cushion is 18 inches deep, 14 inches from the floor, with a pitch of 4 inches.



The New Earl Cabriole.

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The Industry's Black Eye

THERE has been a lot said and written about the garage man giving poor service, charging too much for service and in some instances being out and out dishonest in his dealings with his customers.

Faults within the repair end of the automotive industry have been many and still are many. Stories are still too frequent of some service man trying "to put it over." It is a sad truth, and we are willing to admit it, that the automotive repair industry harbors a number of careless, inefficient and, in some instances, unscrupulous individuals. By the very nature of the business, by the very ignorance of the general motoring public, these individuals are able to carry on for a while. But that sort of thing cannot last. A man only requires to be stung once and as there is a limit in every territory for the eligibles for the ancient order of the "stung," the run of such individuals is a short one.

If the actual operations of these persons last but a short time, unfortunately the black eye they give the business generally is noticeable for a long time and the stigma rests on the just as well as the unjust. Fortunately there are few such repairmen in the business and we are inclined to think that the stories of unscrupulous dealings are much exaggerated, but even the few are too many.

There is only one cure, only one way, as we see it, of overcoming this situation, and that is by organization. If all the good dealers and garagemen were banded together in a Dominion-wide organization there would be a tribunal formed at which the inefficient, the careless and the unscrupulous would meet swift punishment.

There would be no place for the inefficient in the industry, for the organization would demand that every man desiring to do repair work should serve some form of apprenticeship and be allowed to graduate to the status of a journeyman only after passing a series of tests set by the organization. There would be no room for the unscrupulous, for the organization would have a speedy means of disposing of all such.

Dealer Not Always To Blame

IN THE preceding editorial we have discussed the black eye of the automotive industry and make no apologies for saying what we did, but in discussing this matter we must not lose sight of the fact that many of the complaints of motorists are due to misunderstanding and some of them cannot be justly lodged against the dealer. Sometimes a repair is not ready at the time promised and the dealer is not always to blame.

To illustrate what we mean: not long ago a motorist broke a certain part of his car and turned it over to his garage man to fix up. A new part was needed. As this was a large part—one-half of the rear axle—and the dealer operating a small garage, it was necessary to send to the factory or branch to get a replacement. The dealer put the order through immediately and promised delivery in three days. After the three days were up the motorist called the garage man only to be told the part had not arrived. On the fifth and

To Our Readers

Commencing with the September issue we wish to announce to our readers that Canadian Motor and Tractor Trade Journal will change its name and its shape. In future it will be known as CANADIAN AUTOMOTIVE TRADE and will be published in standard trade paper size, 9 1/4 x 12 1/4.

Canadian Automotive Trade, as in the past, will be devoted to the interests of the dealer who is selling and servicing automobiles, motor trucks, tractors, Automotive Equipment, etc.

During the past three years "Canadian Motor and Tractor Trade Journal" has won an influential position in the Automotive trade of Canada.

Every issue of Canadian Automotive Trade will have a carefully balanced list of contents. Every phase of the dealer's business life will be covered by the editors and by writers who are authorities in their different lines. Through intimate acquaintance with the Canadian dealers and Canadian conditions, the editorial department is in a position to advise and instruct. Through the wide organization of the publishers, the MacLean Publishing Company, Limited, covering every part of Canada, they have unusual resources for securing information and news of trade conditions.

The following are the principal topics which will be discussed in each issue of Canadian Automotive Trade:

SALES AND MERCHANDISING--New ideas and sales methods, the experiences of successful dealers, new avenues for business.

SERVICING--Articles on the servicing of Automobiles, Motor Trucks and Tractors.

BUSINESS METHODS--Accounting systems for the dealer and the garage man.

NEW AUTOMOTIVE EQUIPMENT--A description each month of new goods on the market and new shop equipment.

NEWS OF THE TRADE--

An unusual program has been mapped out for the September issue. Outstanding men of the Automotive industry will discuss some of the problems vitally associated with the industry to-day. Some of the articles already to hand ring big and true and cast a new light on perplexing problems. We are not going to say more about this program here, but we can assure you when you get your copy and have read all the articles through you will be able to see your own business and the automotive industry as a whole in a new and clearer light.

seventh days the same answer was given, along with the information that another ten days would be required because the part would have to be brought from the States. In desperation the motorist got in touch with the local branch of the manufacturer and was informed the part could be procured in Canada and would be delivered to the motorist's garage man the next day. Sure enough the next morning the part was on hand.

Now what we want to make out here is the poor service on the part of the manufacturers. The dealer did his part, by putting in his order at once and communicating every day with the branch office. Whether this neglect was due to lack of efficiency on the part of the manufacturer's staff or to pure carelessness does not matter, such conditions exist and the dealer gets all the blame. A closer co-operation between the manufacturer and the dealer and sympathy for the dealer's problems would do much to improve matters in a department of the automotive industry where there is much room for improvement.

How Trucks Are Not Sold

FACTORY representatives play an important part in retail truck selling at the present time. Their activities include not only instructing the dealer in selling methods but also the actual work of interviewing the prospect in certain cases, says Automotive Industries.

Consequently the methods of factory representatives should be the best known for truck selling work. They should be experts in merchandising methods as well as in knowledge of the component parts of the truck. Their scope of influence is wide. Their opportunity for constructive work is broad, but the danger of broadcasting poor methods is just as great. Such factory representatives should receive careful instruction before being sent out to aid dealers in making sales. Otherwise it is like the blind leading the blind.

A factory representative of a nationally known truck company went out to help a dealer sell a truck to a farmer the other day. After some difficulty the farmer was induced to come out to the road from the field where he was working to look at the truck. As he came out, the farmer kept protesting that he didn't want a truck; that he had no use for one, etc.

When the farmer did get out to the truck, the factory salesman started in to tell him about the strong rear axle, the excellent body construction, the fine material used in making the frame, etc. Not a word about transportation. Not a suggestion as to how that truck would fit into the farmer's working plans; how it would save money or time for him; how it would be an efficient transportation tool.

The factory representative was talking to the farmer about the things that interested him as the salesman, not the things that interested the farmer as a possible user of the truck.

In the meantime the local dealer stood by getting education in truck selling methods.

McLaughlin-Buick For 1923

(Continued from page 7)

corners. In the open bodies the cushions have been lowered and the seats made more comfortable.

In the four-cylinder line, the body changes follow closely the changes in the six-cylinder. All of the closed bodies have been entirely re-designed for greater rigidity and in appearance and trim have been brought up-to-date. The painting on the three-passenger roadster is now blue with gold stripes. A flush rear deck door with an improved lock is fitted. A tire carrier is also tilted toward the deck.

Deep black with gold stripe painting has been adopted on the six-cylinder, five-passenger phaeton. The tops are re-designed and lowered, seats lowered and steering gear location changed to provide greater ease in driving. Other interesting detail changes have been made in the appearance of this model. The six-cylinder, seven-passenger has included as standard equipment a rear vision mirror, sun shade on the windshield and gasoline gauge on the instrument board. The rear seat has been widened an inch, the back of the front seat has been re-designed and a roll added around the top for appearance.

The wheelbase of the four remains as it was, 109 in., and the six-cylinder chassis is put on two wheelbase lengths, 118 in. and 124 in. On the 118 in. wheelbase are the five-passenger touring sedan, two-passenger roadster, five-passenger phaeton and five-passenger sedan. The four-passenger coupe, seven-passenger phaeton and seven-passenger sedan, three-passenger sport roadster, and four-passenger sport phaeton are all on the 124 in. wheelbase.

Announcing 15 New 1923 Models

Nine New
Master Sixes



Six New
Master Fours

BUICK

Canada's Standard Car

NEW PRICES

9 NEW MASTER SIX MODELS

		New Price	Old Price
23-41-Touring Sedan	5 Pass.	\$2725	
23-44-Special Roadster	2 Pass.	1695	\$1965
23-45-Special Touring	5 Pass.	1725	1995
23-47-Sedan	5 Pass.	2795	3095
23-48-Coupe	4 Pass.	2675	2945
23-49-Special Touring	7 Pass.	2095	2345
23-50-Sedan	7 Pass.	3095	3445
23-54-Sp'l Sport Roadster	3 Pass.	2295	
23-55-Sp'l Sport Touring	4 Pass.	2375	

6 MASTER FOUR MODELS

		New Price	Old Price
23-34-Special Roadster	2 Pass.	\$1275	\$1340
23-35-Special Touring	5 Pass.	1295	1375
23-35-Regular Touring	5 Pass.	1235	1295
23-36-Coupe	3 Pass.	1645	1895
23-37-Sedan	5 Pass.	1950	1995
23-38-Touring Sedan	5 Pass.	1855	

All Prices F.O.B. Oshawa
—Government Tax Extra



MASTER SIX 23-45 SPECIAL
The Standard of Comparison

McLAUGHLIN MOTOR CAR CO., LIMITED
OSHAWA, Subsidiary of General Motors of Canada, Limited ONTARIO

How I Would Keep Tractors Sold If I Were a Dealer

It Does Us All Good at Times to Sit Down and Listen to the Other Fellow Talk. In this Story the Writer, Who Has Been Operating Tractors on a Farm for a Number of Years, Tells of His Experiences and Makes Some Observations Which Will be of Interest to all Those Selling Tractors

MAYBE you think that I am presuming when I have the boldness to offer suggestions to a dealer. But I think that perhaps an explanation of the farmer's side might help some dealers to understand their customers better.

I have purchased three tractors and two trucks during the time I have had a variety of experience in securing service on these various implements, and I believe if I tell you frankly of some of these experiences, that you can get a better idea as to what a farmer appreciates in the way of service and suggestions.

The first tractor I bought was of the crawler type, and the man who sold it to me certainly had me convinced that this was the right kind of a tractor. I was unfortunate, however, in that I bought one of the first machines that were turned out of a new model. This happened to me during the war when castings were rather poor, and I broke first one casting, and then another. I didn't mind the expense of buying another casting so much, but I didn't like to have that expensive machine stand in the shed when it ought to be in the field plowing, or discing, or doing some other work. During that first season, that machine was laid off during the most critical times for fully two weeks at a time.

Parts Should Be Immediately Available

Now, don't think for a minute that this lay-off was due to any delay on my part in reporting the breakage. It was due to the fact that I could not get the new parts and get them installed any sooner, although I lived within 50 miles of the factory. Once in a while the breakage was something I could replace myself and I drove to the factory in my own car, got the parts, and installed them myself, and the delay was shorter. But on the occasion when I was delayed for two weeks at a time, it happened that the part that was broken had to be installed by a factory service man. The service man was slow in arriving, and so a long delay resulted.

Now, if I were a dealer, I would not let a thing like this happen. If I were not financially able to carry a full stock of parts, I would, at least, keep on hand one or more complete tractors that could be taken apart to supply the necessary parts that I did not have in stock. Then my customer would not have to delay his work waiting for the part. Furthermore, I would either inform myself thoroughly of the necessary service work so that I could do it, or else I would employ a man that could install the parts without my sending to the factory.

It is true that the factory usually supplies a man free, and my expense as a dealer would be less if I waited for the factory man, but there's nothing that disgusts the farmer so thoroughly and so quickly with a new purchase as to have a delay on service.

Perhaps, if I were to start in handling tractors, the first step I would make in the direction of a proper kind of service, would be to select a make of tractor that required little service, and one that would make it easy for me to carry a stock of parts.

Make the Customer Feel He Has A Bargain

Service provided for, takes care of one phase of keeping the tractor sold. The next thing to do is to make the customer feel that he has a bargain.

You know yourself, that when you make an investment of anywhere from \$1,500 to \$3,000, you are inclined to think of that investment frequently, especially if you are not getting any very definite returns from it. If you sell a tractor to me and I don't know how to use it except for plowing, you are soon going to have a dissatisfied customer, because some day when I am short of money, I am going to wish that I had the \$2,000 that I paid you for the tractor, and I am going to begin to think to myself

By JOHN Y. BEATY

that the investment does not earn very good interest when I use it only a few days in the year.

Consequently, if I were a tractor dealer, I would make a study of the variety of uses a tractor may serve, and make it a point to call upon my customers as frequently as possible to suggest new ways to them, and to help them learn how to apply the tractor to different jobs.

Keep An Eye Open For Novel Uses of Tractor

Take, for example, an experience I had just the other day. I was driving to town and passed a field of a neighbor that has been an eye sore for a good many years. The neighbor was draining that field so that he could put it to use, and he was using the tractor to fill the ditches after the tile had been placed. The device he was using was simple, but it was wonderful the amount of work it was saving. If you know what a hard job it is to shovel dirt into a ditch by hand, you will realize what a wonderful saving will be effected by using a tractor to push the dirt by simply driving alongside with the proper kind of a scraper fastened on behind.

If I had been a tractor dealer, I would certainly have made a photograph of that scene, and I would have got all the details about the making of the device that filled the ditch. This photograph I would show to all of my customers. If I thought I could afford it, I would have a cut made and publish the picture in a local paper, together with a description of the use of the outfit.

Keeping in Touch

After I bought my first tractor, I never saw the dealer except when I went to his place of business. Apparently, he was not at all interested in how I was getting on with the tractor. I had a telephone, and so did he. He could at least have called me up—but he did not.

He passes by my place frequently, because a great many of his prospects live beyond my place and he is on the road most of the time. He could have stopped in to see me—but he did not.

You know that farmers appreciate being visited with. We work alone so much that we get more or less lonesome, and while we are always busy, we do like to have folks stop occasionally and talk to us, especially if they are talking about something in which we are interested. That dealer of mine could have made a most enthusiastic customer out of me, one that could have steered some sales in his direction but he did not.

If I were a dealer, I would embrace such opportunities as this. I would make it a point to call on my customers just as often as I could. If I didn't have time during the week, I would make a social call on Sunday. There would be no harm in casual-

ly asking about the tractor. Maybe I would get myself into a lot of extra work, but what if I did? I would get additional sales by it, I am sure.

I have a friend who is in the tractor business, and he has made a practice of sending out someone from his office to see not only every tractor owner in his territory, but every tractor, at least twice, if not three times a season.

The man who calls looks over the tractor, asks about its condition, and examines it himself. If he finds any loose nuts, he tightens them. If he finds any indication of lack of care, he calls it to the attention of the owner and suggests a way to give the proper care. If he finds any part that needs replacing, he determines the cause of the wear or the break. If it is the fault of the factory, he tells the customer that a new part will be brought out at once and installed. If it is due to the ordinary wear and tear, he urges the owner to buy a new part and have it replaced at once.

That friend of mine gets ten times as many new customers by this means of advertising as he does from the space he pays for in the local paper.

Educating the Customer

If I were a tractor dealer I would try to make my customers feel the importance of their judgment in purchasing power farming equipment. And I would do this in a number of different ways, some of which are likely to present themselves to any dealer.

For example: Suppose there is going to be a Dominion Day or Labor Day celebration in our town. I would try to arrange for some sort of an industrial parade, getting not only the other lines of business interested, but interesting my tractor owners in the proposition. I would try to arrange for all of my owners, if possible, to come into town with their tractors, (unless some of them lived too far away), and join in the parade. It might be that I could get some prizes offered for the best decorated tractor, or it might be that I could accomplish more by having certain signs painted that could be attached to the various tractors, these signs to emphasize the importance of power farming.

If possible, I would try to arrange each year for a plowing contest, exclusively for tractors. I think I could interest the local bank, and perhaps some of the business men in a proposition of this sort.

My object in holding a plowing contest would be two-fold: First, to teach my customers how to handle their tractors better; second, to give the community a better idea as to the importance of power farming.

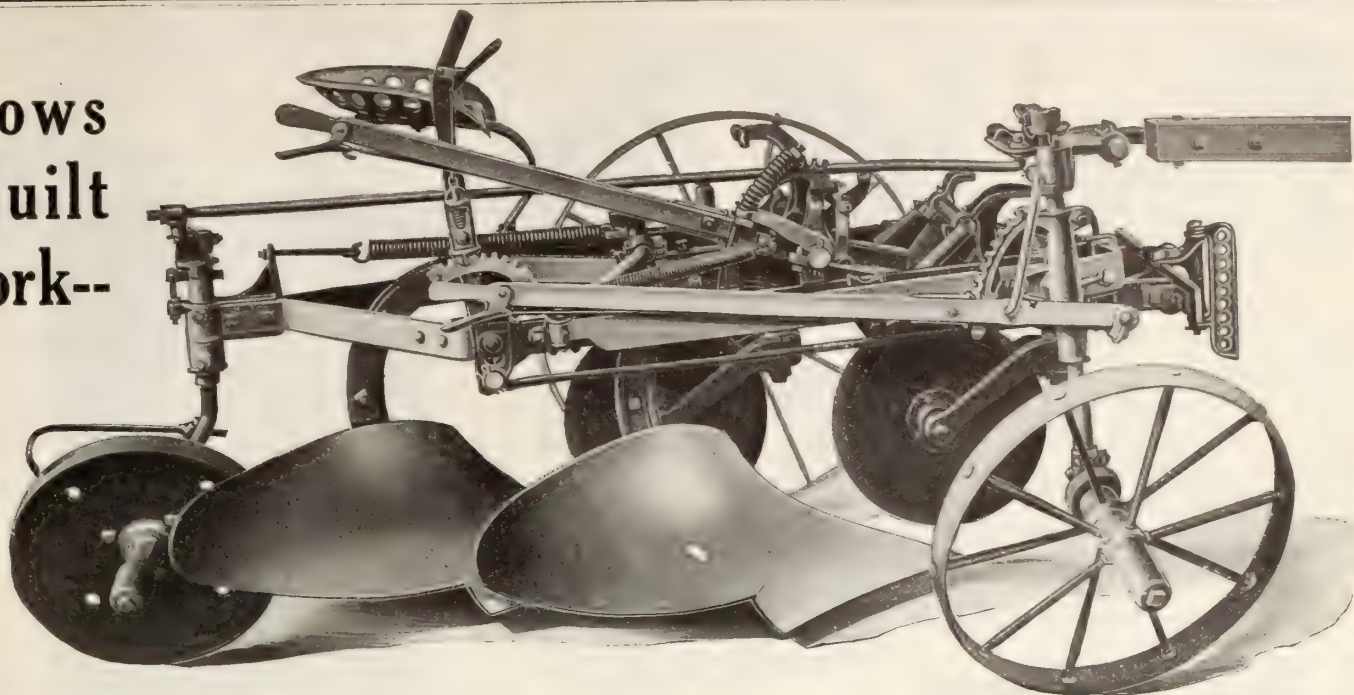
Power farming is the coming thing. I am thoroughly convinced of it, because I have had practical experience with it. But power farming needs to be sold to every farmer before it will be a universal method of raising crops. Farmers must not only be shown the advantages from power farming, but they must also be instructed as to how to make complete use of it.



This fleet of three small crawler tractors is doing practically all of the work on the 2,000 acre Daisy Hill Farm near Cleveland, Ohio. Manager Marsh says that "by absolute insistence upon proper lubrication he eliminates all trouble and keeps his machine in the field every minute that there is work to do."

Sell the Plows That are Built for Rugged Work--

**Hamilton
Gang Plows
and
Sulkies**



Soon the time will come when farmers will again turn their thoughts toward plowing, and to the purchase of newer and better equipment for this important work. Some dealers will doubtless be caught napping—but there will be no alibi for the McCormick-Deering dealer who does not get his share of this good business.

You men with the McCormick-Deering line are particularly favored. Your line is complete, and made up of sturdy, light-draft plows that are built for rugged work. Good business is ahead—don't let this season slip by unheeded! Get your stock in order, and start an aggressive campaign now! Your branch house will help you.

**HAMILTON PLOWS
ARE MADE IN CANADA**

**INTERNATIONAL HARVESTER COMPANY
OF CANADA LTD.
HAMILTON CANADA**

WESTERN BRANCHES—BRANDON WINNIPEG MAN. CALGARY EDMONTON LETHBRIDGE ALTA.
ESTEVAN N. BATTLEFORD REGINA SASKATOON YORKTON SASK.
EASTERN BRANCHES—HAMILTON LONDON OTTAWA ONT. MONTREAL QUEBEC QUE. ST. JOHN N. B.

**HAMILTON PLOWS
ARE MADE IN CANADA**



The Famous "Waterlo Boy"

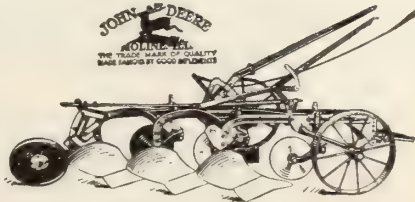
12 H. P. on draw-bar; 25 H. P. on belt

The Power End

we believe to be the most practical, economical and reliable farm tractor yet designed. Six years of uniform success in giving real service has demonstrated this in the most emphatic way. It is a three-plow tractor—the handiest size of all for any size of farm. Burns kerosene with no draw-back because a special manifold, built to gasify the kerosene, converts the fuel into the proper condition for complete combustion. All the fuel is converted into power. The spark plugs are not fouled, the cylinders remain free from carbon and the lubricating oil is undiluted.

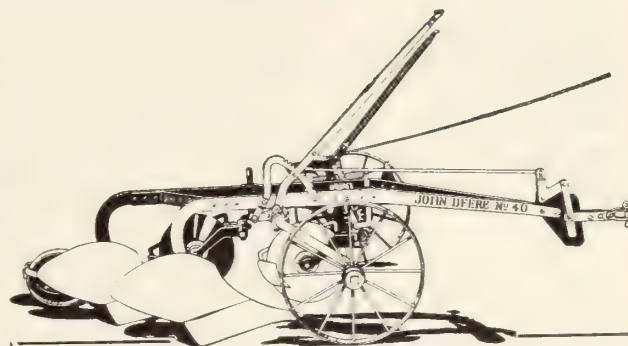
A Great Tractor-Plow Combination The Business End

of the combine, however, is the John Deere tractor-plow, equipped with genuine John Deere bottoms that are shaped to scour, turn and deal with the soil to the best advantage. The simple positive power lift insures a quick and high lift from the soil. No trouble from trash gathering when transporting or turning at the ends. Extra heavy beams of special John Deere steel are guaranteed not to bend or break.



John Deere No. 5 Tractor plow

You can't start the fall with greater prospects than by getting in touch with the John Deere line. It makes the farm and consequently the dealer's job a big paying business.



John Deere No. 40 Tractor Plow

Designed and built for the Fordson Tractor

"No. 40" has important built-for-the-Fordson features possessed by no competitive plow.

NOTE the self-adjusting hitch, no other plow has it. With this the plow automatically maintains the correct line of draft as depth of plowing is varied. Bottoms run true and have the right suction at all times—no "nosing in" or "hopping out" of the soil. The clevis fluxes up and down, permitting the plow to run smoothly, to maintain even depth and keep on doing first-class work regardless of action of the tractor in passing over uneven ground. It weighs no more than the average horse-drawn sulky. Beams are guaranteed not to bend or break. Frame connections are hot-riveted extra strong.

JOHN DEERE MANUFACTURING COMPANY, LIMITED

All John Deere Plows Equipped with Ontario all-steel bottoms.

Welland



Ontario

A full line of Plows, Harrows, Cultivators, Drills, Hay Tools, Spreaders, Potato Machinery, Beet Tools, Engines, Tractors, etc.



COLUMBIA "HOT SHOT" BATTERIES

for
**Farm Power,
Tractors
and Starting
Ignition
on Fords**

*Canadian Made
for
Canadian Trade*

**A GOOD
PROPOSITION
FOR DEALERS**

The minute you connect a new Columbia Hot Shot Dry Battery to your gas engine, you will discover that she is giving you more power. Later you'll learn that you're saving gas.

**A Longer-Lasting Better
Battery for Tractors
and Stationary Engines**

Here's a single, solid dry battery of many cellpower—the sturdiest package of power ever built. No loose connections, no short circuits.

For easy starting ignition on your Ford, put Columbia Hot Shot No. 1461 under the seat. Saves prolonged cranking—usually ignites the first compression of gas.

Every dealer in Gas Power Farm Machinery should stock and sell Columbia Dry Batteries. They are recognized the world over as the standard of all dry batteries. Every sale carries a liberal margin of profit for the dealer. Columbia dry cells are sold by all leading jobbers.

CANADIAN NATIONAL CARBON CO. LTD.
MONTREAL TORONTO WINNIPEG VANCOUVER

Columbia Dry Batteries

—they last longer—

J. L. HIBBARD ELECTED PRESIDENT MAXWELL & CHALMERS

JOHN LAWRENCE HIBBARD has been elected president and general manager of the Maxwell and Chalmers companies of Canada. Mr. Hibbard will assume immediate-



J. L. HIBBARD

ly complete charge of the management of both companies, actively directing manufacturing operations, as well as distribution and merchandising.

His many years as export manager of the Studebaker Corporation and his more recent experience as president and general manager of the Cleveland Tractor Company of Canada, Limited, make certain the advancement of Maxwell and Chalmers interests in the Dominion under Mr. Hibbard's guidance.

DODGE MOTOR CO. WILL BUILD AT WINDSOR

THE Dodge Bros. Motor Co. of Canada has purchased seven and one-half acres in Windsor, Ont., as a site for a plant. The site has 1,934 feet of frontage on the Canadian Pacific.

GENERAL MOTORS CUTS PRICES

GENERAL Motors announces several cuts in prices of automobiles built by its subsidiary companies. Cuts ranging from \$10 to \$20 were made in Chevrolets, effective at once. Oakland models have been cut, the reductions ranging from \$40 to \$150. Cuts ranging from \$150 to \$240 have also been made in the Oldsmobile models.

PACKARD ESTABLISHES NEW BONUS PLAN FOR WORKERS

IN order to stimulate production and accuracy and pride in workmanship, the Packard Motor Car Co. has established a new bonus system for workers at the plant.

The new plan takes the place of individual bonuses paid by the Packard for a number of years and is said to be entirely new among all bonus plans that have been tried in American manufacturing.

Under the bonus system the degree of efficiency at which each department is operating is fixed, after a time study of the work of the department. For each one per cent. of increase in efficiency the department is able to make above that fixed as the base each individual worker in the department is given a one per cent. increase in wages for the pay period. The increase is measured in accordance with increased work produced.

Inasmuch as any increase in the personal efficiency of any one worker in the department tends to increase the percentage of efficiency of the entire department, with a resulting increase in wages for each individual, an incentive is held out to each worker to do more and better work.

THE "FLINT" ANOTHER DURANT CAR

NEW YORK.—Addition of a popular priced six-cylinder car to the line of Durant enterprises is announced by W. C. Durant. New car to be known as the Flint will be ready for public inspection about September 15 and in production by January 1, 1923. Price will be \$1,180.

Flint Motor Co., a subsidiary of Durant Motors, Inc., will be capitalized at \$5,000,000. Application for its charter has been made at Lansing, Mich.

Car is named for city of Flint, where principal plant will be located, although for convenience in supplying eastern markets the car also will be turned out at Long Island City in plant about to be vacated by Durant Motor Co. of New York, which will move into the former Willys Corp. plant at Elizabeth, purchased by Durant recently at receiver's sale.

The new Durant product is a refinement of the so-called Chrysler car, which was acquired when Willys Corp. plant was purchased.

MAXWELL OF CANADA BEHIND IN DELIVERIES

DIRECTORS of Maxwell Motor Co. of Canada, Ltd., at a meeting held in the factory offices in Windsor, Ont., expressed unanimous approval of the Maxwell situation in the Canadian territory.

Sales prospects during forthcoming months also were reported as exceptionally encouraging and this, combined with the taking over of a certain amount of the Maxwell export business in British possessions, promises to keep the Windsor plant at production peak for many months to come.

To-day, sales and production figures show that the company is about two weeks behind in deliveries for current business, and July 1st it was only four orders short of maximum scheduled production up to July 15.

Gradually increasing production facilities, however, will eliminate any danger of such an over-sold condition as one which works to the annoyance of prospective Maxwell purchasers, it was stated.

Officials attending the recent board meeting included J. L. Hibbard, president and general manager; William Robert Wilson, vice-president; B. E. Hutchinson, treasurer; W. Ledyard Mitchell, secretary; and Arthur E. Barker, director.

MOON CO. ELECTS NEW OFFICERS

AT the annual meeting of the stockholders of the Moon Motorcar Company the following officers were elected to serve for the next twelve months:

Stewart McDonald, president; W. D. Hemenway, vice-president; A. F. Moberly, vice-president; Stanley Moon, secretary; H. W. Klemme, treasurer; Earl F. Nelson, assistant treasurer; J. S. McIntyre, assistant treasurer.

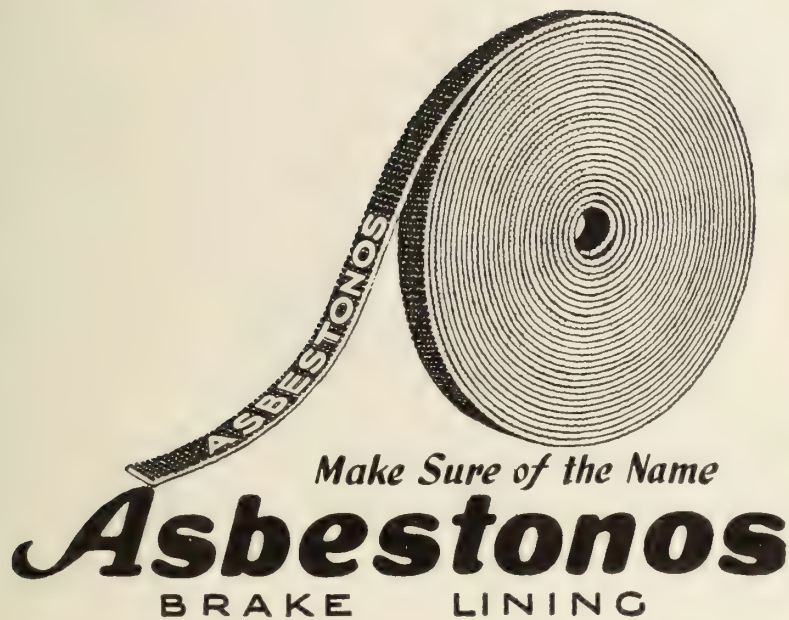
The following were elected directors: Stewart McDonald, W. D. Hemenway, Stanley Moon, C. W. Burst, F. H. Rengers, G. H. Schelp, A. F. Moberly.

Mr. McDonald reported to the stockholders that the company is enjoying the greatest volume of business in its history. May showed an increase of 126 per cent. over May of 1921 and June showed an increase of 194 per cent. over June of 1921.

CUT IN I. H. C. DELIVERY WAGON

THE International Harvester Co. has increased the capacity of its delivery wagon from $\frac{3}{4}$ -ton to 1-ton, and has cut the price from \$1,500 to \$1,250; these are United States prices.

from Canadian Mines



comes the carefully selected long-fibre asbestos used in Asbestonos Brake Lining-- Canadian workmen weave it and impregnate it with oil and grease resisting compound--

Asbestonos is not only long wearing--but *All* Canadian

The Asbestonos Company, East Broughton, Que.

Richardson & Bureau

Sole Selling Agents

Montreal



Helpful Shop Notes for the Garage Man



Oil Pumping Discussed by Engineers

Much Emphasis Put On Proper Ring Fit.
Vacuum Device Suggested by S. A. E.

From a paper by George A. Round
before the S. A. E. recently

OIL-PUMPING may be defined as the passing of oil into the combustion-chambers of an engine at a greater rate than it can be burned cleanly by the fuel charge. The results are spark-plug fouling and carbon deposits, or in the absence of these difficulties the rate of consumption may be sufficient to cause complaints from the owners on the oil cost. The amount of oil that can be burned without trouble in any engine depends somewhat on the oil character but chiefly on the load factor and the correctness of the mixture.

Because of the influence of the load factor it is possible to use in the more severe classes of service a type of lubricant that, while desirable from the standpoint of lubrication value and high economy, would cause undesirable carbon deposits in engines operating under more moderate conditions. In cars having a high acceleration rate the engine load factor under normal conditions has become very small. With the rich mixtures commonly used conditions are most unfavorable for burning cleanly any oil passing the pistons. This type of engine is also prone to knock readily with slight carbon deposits due to the high compressions usually employed. Consequently, it has been necessary to reduce the oil consumption in such engines to a point that is undesirably low from the dilution standpoint.

To assure good lubrication and to

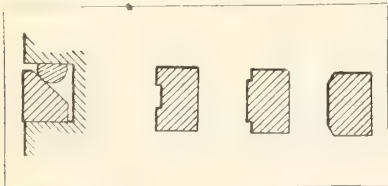


Fig. 1.—The first three views beginning at the left show how the pressure of the piston-rings against the cylinder wall is increased by reducing the contact area, while the illustration at the extreme right shows a ring designed to remain tight.

frequently, he finds it such a disagreeable task that it is not done as often as it should be, and contamination of the oil to an excessive degree is the result. It is a fact, however, that in many engines the rate of oil consumption increases to an undesirable extent after a comparatively short period of service, and it is in the control of this that we are chiefly interested.

The amount of oil passing an engine piston in a given time depends upon the following principal factors: (a) the amount of oil thrown to the cylinders, (b) number of piston strokes, (c) the efficiency of the means for piston drainage, (d) the ring fit, (e) the oil viscosity and character and (f) the vacuum in the cylinder.

Proper piston-ring fit is one of the most important factors controlling oil consumption. When the rings fit correctly, the matters of clearance and provision for drainage become of minor importance. The chief points in regard to ring fit are the amount and uniformity of the tension of the ring and its clearance in the ring-groove.

Other factors being equal, the amount of oil consumed can be varied through a considerable range by changes in the ring pressure. This was clearly shown by some experiments on aircraft engines that were using too much oil. After fitting the bearing as closely as possible and cutting the pressures to a minimum, it was found that a 30-per cent. reduction in the oil consumption could be effected by reducing the contact area of the rings about one-third, as shown at the left of Fig. 1. It is interesting to note that this method was equally as effective as the other methods of reducing the area shown in the two central views of this illustration. This is contrary to the common opinion but it was checked several times in different engines.

The amount of pressure is, however, fairly definitely limited by the rapid wear that takes place when the ring tension becomes sufficient to cause all the oil to be scraped off. The pressure to cause this varies with the character of the lubricant and the nature of the cylinder and ring metals. A reasonable working limit, however, in terms of the pressure required to close the ring is approximately 2 lb. per in. of diameter for a ring of 1/4-in. width and the other sizes are in proportion.

As to the relative merits of narrow and wide rings in controlling consumption, for equal wall-pressures th

seems to be no difference. Because of their lighter weight the narrow rings do not wear the ring-grooves as rapidly, a decided advantage in aluminum pistons and one that gives them preference from that standpoint. In cast-iron pistons, a wide ring gives excellent results once it has worn to a fit.

The fit of the rings in their grooves is of prime importance. Our experience indicates that in engines where the amount of oil thrown to the pistons is constant throughout the engine life, as with splash systems, the oil consumption increases directly with the increase in the ring-groove clearance. Therefore, unless the lubricating sys-

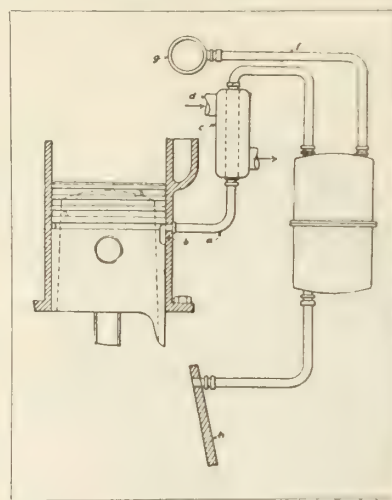


Fig. 2.—Some forms of oil-return grooves.

tem and the piston are designed so that a minimum quantity of oil reaches the piston-rings throughout the normal life of the engine, oil-pumping will increase as the rings wear loose in their grooves.

With cast-iron pistons and rings of moderate width, the wear is not particularly rapid, although in motor-truck work it becomes noticeable in less than a year of service as a general rule. With aluminum pistons the wear is much more rapid and unless the oil supply is controlled effectively by other means, excessive consumption results. To avoid this increase in ring-groove clearance, rings have been made that, due to their design, stay tight in the grooves throughout their life. A typical ring of this kind is shown in Fig. 1 at the right.

The use of a properly designed drain groove with adequate return-holes is a great help in keeping oil consumption low, particularly after the rings have become somewhat loose in their grooves.

Several different forms of return groove have been used. One of the earliest and most common types is shown in Fig. 2 at the left. For this the bottom edge of the lower ring-groove is beveled off slightly and a series of holes drilled from this bevel into the inside of the piston. Where the drain holes are of sufficient size and number and the space for oil collection provided by the bevel is of ad-

equate size, this form of return is effective. It has, however, the decided disadvantage of reducing the area that supports the ring.

A more desirable form of groove is shown in the centre of Fig. 2. With this, a full support of the ring is provided, together with a larger space for the accumulation of the excess oil. In some engines the most effective return has been by holes drilled in the bottom of the lower ring-groove as indicated at the right in Fig. 2. In these the best results have been secured when the ring was slightly loose in its groove and when using a light-bodied oil. Examples of this have already been given.

It has been proved that oil-pumping can be controlled by creating a vacuum in the crankcase to balance that in the intake. This idea has been applied in a very interesting way that not only tends to reduce oil-pumping to a marked degree, but also shows prospects of controlling our dilution and emulsion problems.

Referring to the diagram in Fig. 3, a connection (a) is made to the cylinder wall at a point that coincides with the lower limit of the travel of a groove (b), located on the piston below the ring next above the piston-pin. A short vertical groove intersecting the circumferential groove and in line with the hole for the connection, is also cut in the piston. The connection (a) leads to a heater (c) that is connected to the exhaust manifold by the pipe (d) and thence to a separator (e). From the upper part of this device a connection (f) is made to the intake manifold (g). The lower part of the separator is cut off from the upper by a valve and leads to the crankcase (h). On the side of the piston opposite the connection a hole is drilled through the groove into the inside of the piston.

In the operation of the device the suction in the manifold is communicated to the groove on the piston, while the latter is near the bottom of its travel, and during approximately 90 deg. of crank rotation. The vacuum

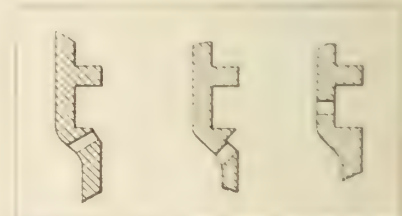


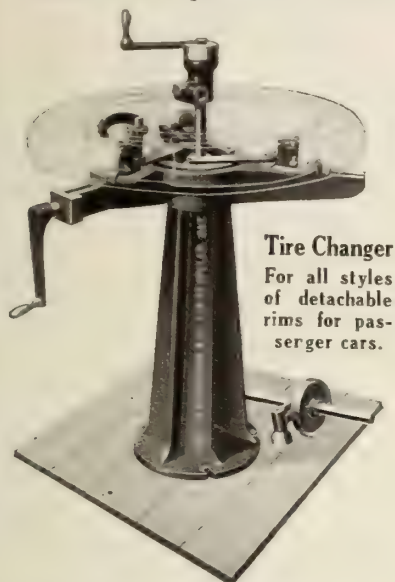
Fig. 3.—Diagrammatic sketch of a device for overcoming oil-pumping and dilution.

created draws into the heater any oil and fuel mixture that collects in the groove and with it a small amount of air. In passing through the heater the mixture is heated by the exhaust to a temperature of about 375 deg. Fahr. On reaching the separator any fuel or water present in the oil is evaporated and carried into the manifold. The remaining oil is passed into the bottom of the separator from which it flows back to the crankcase.

Jardine Universal Tire Changer

New—Handy—A time and Labor Saver

No particular skill is required to quickly change a tire with the Jardine Universal Tire Changer. The principle of operating the sliding jaws together with the compensating jaws for contracting the rim and the rollers which operate when expanding the rim, places this machine beyond competition. Price \$55.00.



Tire Changer
For all styles
of detachable
rims for pas-
senger cars.

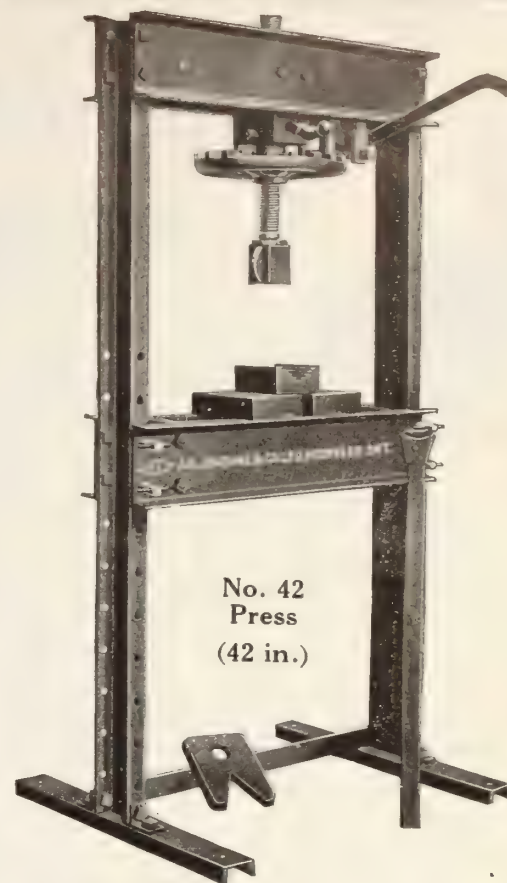
Jardine 25-Ton Presses

Sturdily constructed and of good quality steel, these presses will stand all the strain you may put upon them. 25 ton capacity absolutely guaranteed.

Price, 32-inch, \$95.00 (with Rack Press Attachment, \$133.00).

42-inch, \$100.00 (with Rack Press Attachment, \$145.00).

We also make Floor Cranes, Combination Floor and Wrecking Cranes, Engine Stands, 3 styles, Grinders, Blowers, Forges, Drilling Machines and Taps and Dies.



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A. B. JARDINE & CO., LIMITED
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This Coupon Entitles Sender to Catalog G-22.

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TRAILERS, DUMP BODIES, HOISTS, TRUCK UNITS

TRAILERS—We manufacture a complete line of trailers; 1/2 to 10 tons capacity. The right kind of trailers behind your truck will reduce your hauling cost approximately 45% per ton mile.

DUMP BODIES—Automatic Side and End Dump Bodies from 1 to 10 cubic yards capacity. Hoist operated Utility Dump Bodies 1 1/2 to 5 Cubic Yards capacity.

HOISTS—Our Hand Hoists operate speedily and efficiently. They are free from complication and can be used satisfactorily with all Dump Bodies up to 3 Cubic Yards capacity.

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Replacement Pistons and Piston Pins

You don't have to wait for weeks to have your piston requirements filled. We are now

operating the *first real Replacement Piston Service* ever attempted in Canada. We are prepared to furnish pistons which, as is the case with some trucks, are hard to get.

Let us send you our Piston Directory—you'll find it of great value.

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Automotive Accessories and Implement Equipment

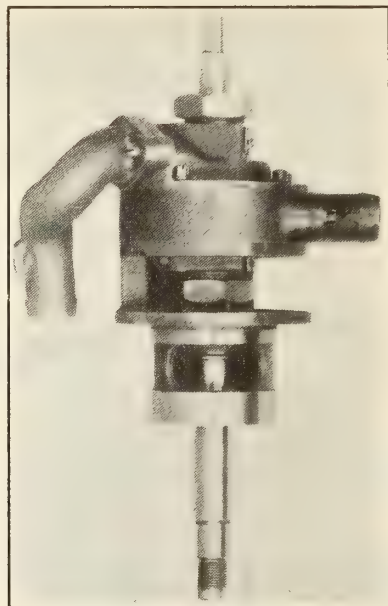


ARROW WATER CIRCULATING PUMP

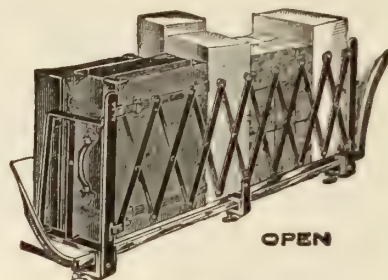
THE ARROW Pump Co., have placed on the market a new water circulating pump. The pump proper is the standard unit. Special fittings for the inlet, outlet and mounting bracket are provided to suit different installations so that it may be applied quickly to any automobile, truck or tractor engine. The ring oiling method of lubrication is used. This construction, the makers claim, prevents leaky glands, scored and pitted shafts and worn bearings. With this method of lubrication it is stated it becomes practical to place the packing between the hot water and the bearings. This prevents entrance of any hot water or other substance into the bearings thereby protecting bearings and shaft from destructive effect.

STANDLEY ADJUSTABLE LUGGAGE CARRIER

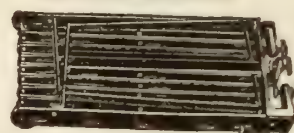
THIS CARRIER fits on the running board and is quickly adjustable to fit the luggage securely. It provides more room, the makers say, eliminating the discomfort of having traveling rugs, suit cases and bulky packages crowded up in the passengers' way. One size fits any car. The carriers are attached by malleable clamps and thumbscrews. The carriers fold up compactly and can be shipped under the seat when not in use. Distributed by Hyslop Bros., Toronto.



Arrow Water Circulating Pump



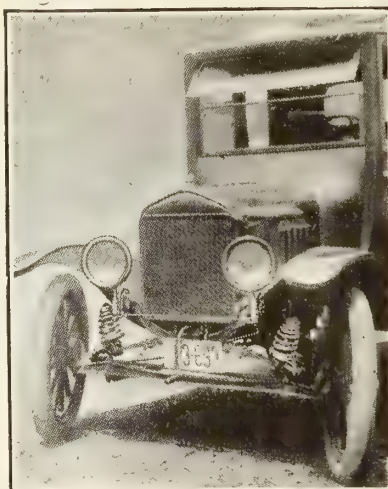
STANDLEY



FOLDED
Standley Luggage Carrier.



Trojan Signal Device.



Roadfinder



Oberdorfer Runningboard



Universal Heater Cut-Out

UNIVERSAL HEATER CUT-OUT

THIS is a positive type cut-out, entirely closing the line to the muffler when the valve is thrown open, and is so constructed that when the valve is closed there is no fluttering, leaking or hissing. The valve is machined and set in an inclined position. The cut-out is made in two pieces and it is not necessary to cut the pipe in two when installing the cut-out. A slit large enough to admit the valve is made on the under side of the pipe, and the two parts bolted together.

The enclosed bottom on the Universal makes it impossible for mud and dirt to lodge under the flap when driving over wet roads. To attach a heater to this device a piece of flexible tubing is slipped into the machined hole at the bottom and fastened with a set screw. Made by the Waller Mfg. Co.

MIAMI REVERSIBLE SLOW SPEED TRAILER

MIAMI reversible slow speed trailers are of all steel construction. The bottom doors and the hopper type of body may be removed and any platform type of body substituted. The trailers are equipped with a 10 in. steel tired wheel 44 in. high, and are equipped with roller bearings.

The bottom dump type has a loading height of only 62 in. so that it may be operated under an elevating grader or under loading bins. This means that the top of the body is but 18 in. higher than the top of the wheels. The hopper type has a level loading capacity of three full yards and a rounded capacity of four yards. The wheel base is 7 ft. 5 in. The trailers are reversible so that a train of trailers can be drawn forward or backed by locking the drawbar on the rear end of each trailer unit.

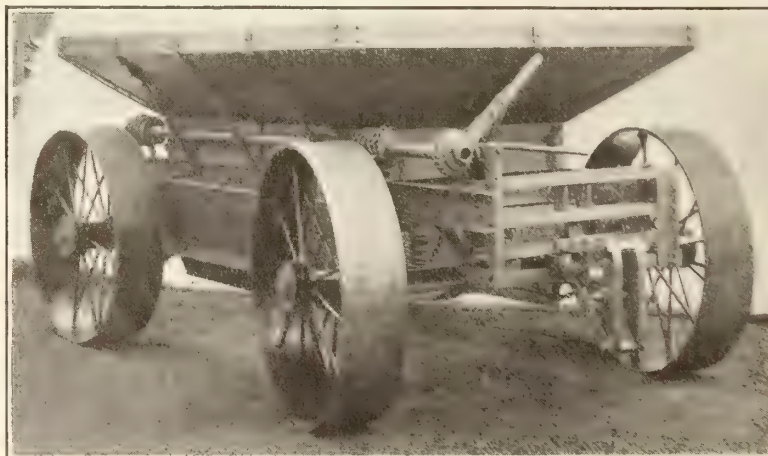
A spreader is furnished for the Model MR3, this spreading attachment being affixed to the last trailer of a train which will spread the contents of the entire train to any depth from 3 in. to 9 in., and to a total width of 60 in.

THE TROJAN SIGNAL DEVICE

THE TROJAN signal device is designed to combine the tail light, number plate and STOP signal in a convenient manner to make it possible to have all three necessary parts on the left rear mudguard. The device, the makers claim, enables the operator to see the word "STOP" at a distance of two hundred and fifty feet in the day time, and one hundred feet at night, the side lens of the tail light furnishing ample light for illuminating the word "STOP." The blade has white letters 1 1/4 in. high by 5/8 in. wide, and is controlled electro-mechanically. All mechanism is concealed. Two switches are provided. One, a push button switch, operating the blade from the steering wheel; the other, an automatic switch, operating the blade when the car is running between two and thirteen miles per hour. The automatic switch is operated in connection with the speedometer shaft and requires no attention. Either switch may be used separately, or both may be installed, the push button switch being used if one wishes to make a quick stop at a speed higher than thirteen miles. Made by Sweet & Doyle Foundry and Machine Co.

OBERDORFER RUNNING BOARD PLATES

THESE are polished aluminum runningboard plates and are designed to perform a fourfold duty. They consist of a diamond mat, shoe scraper, straps placed through the loops in the plate for carrying luggage, and raised back for protecting runningboard side shields. They are made in three sizes to fit any car. A special Ford plate is also made and is the same as the other plates except that it does not have a raised back. This size can be used on other cars but the size is exact to fit between the raised grooves on the Ford runningboard. Made by M. L. Oberdorfer Brass Company.



Miami Reversible Slow Speed Trailer.



They Will Understand

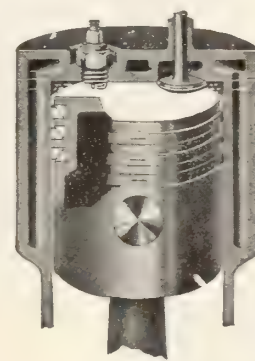
explain the functions of an Excellence Piston Ring to the Car owner, he will appreciate you doing so, he is interested in technical details as much as you are and cannot fail to be interested in the double expansion of an Excellence Ring.



There are hundreds of motorists who are looking for a Piston Ring such as this.

They will at once see that it affords them a more perfect seal and therefore much more power, if you have not already ordered Excellence Rings do so now and get them working for your clients.

We are rapidly popularizing these Rings through an effective advertising campaign that is creating a wide-spread demand for two-way-expanding Rings.

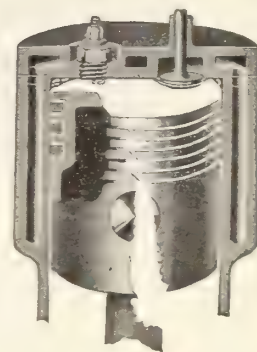


**The Right Way
is
"Excellence"**

Perfect two-way expansion against the top and bottom of groove in piston and out against cylinder wall. Notice also the "Step-Cut" Slot which prevents leakage where the Ring joins.

**The
Ordinary
Way**

not expanding two ways—will fit the cylinder wall—but won't be snug against the piston—so the power escapes all around the Ring, and through a slot which is not "Step-Cut."



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Quebec MONTREAL Winnipeg

or

Samuel Trees & Co.

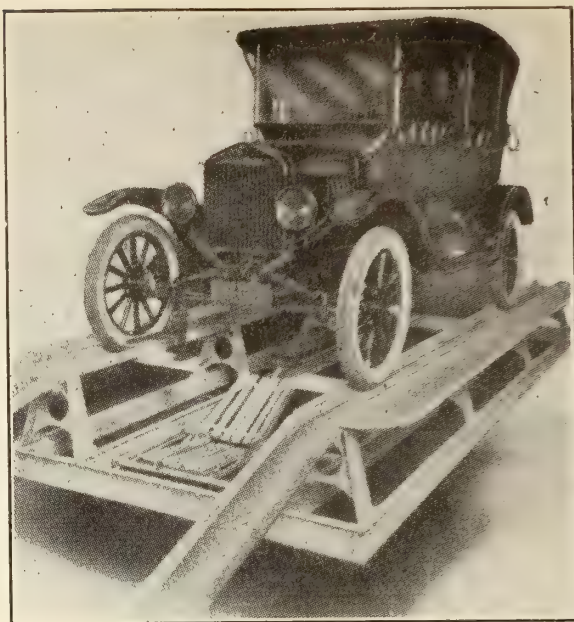
Toronto

THE JOHNSON OILING, GREASING AND WORK RACK

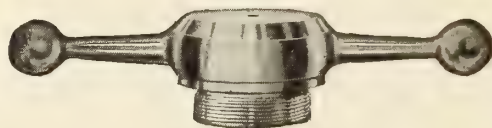
THE CAR to be repaired, greased, painted or washed is run up onto this rack placing it about 21 inches above the floor, just high enough to enable the workman to work underneath the car in a sitting up position. The chair is adjustable to most any position, and can be reversed to suit the workman; it also has an adjustable head rest. The jack stands can be placed at any place along the channel iron runways, and any ordinary automobile jack can be used upon the jack stands in removing a wheel, etc., leaving room for the workman to get from end to end of the machine. A special set of jacks are also made to fit the jack stands and are used to support the rear or front end of car, when removing the rear or front axle. They lock the car to the rack. The running boards on the rack allow the workman to work on the rest of the car as if he were standing on the floor and working on any part of the car above the car frame. The end approaches are removable so that the rack does not take up any more floor space than a car. The approaches and runways have attached safety rails about 5 in. high extending from end to end of approaches and runways.

The frame is constructed of 4 inch bridge channel. Cross braces are of pipes tied together by bolts through the pipes and channels. The runways are also constructed of channel and are bolted to the runway brackets which are made of cast iron. The runboards are wood supported by angle iron brackets. The safety rails are made of pipe and are supported by brackets and fastened to the inside of the runways and approaches.

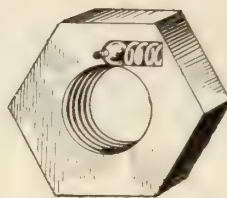
The racks are made in three types, truck, standard and Ford special. Made by the Johnson Automotive Service of America.



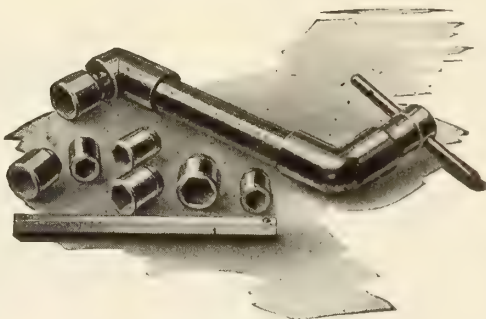
Johnson Oiling, Greasing and Work Rack.



Silver Bar Radiator Cap.



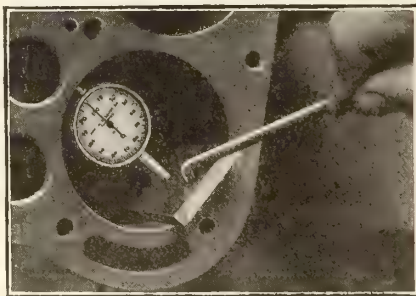
Self-Locking Nut



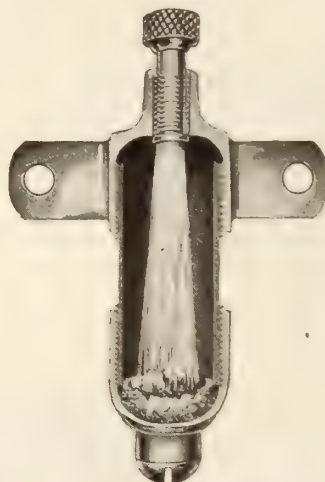
Onli-1 Socket Wrench.



Graynie Spare Tire Lock.



Atlas Mikro-Indicator Cylinder Gauge.



Detector for Crystal Receiving Sets



Sutter Crank Shaft Tool.

SELF LOCKING NUT

THIS nut can be drawn to any degree of tightness. It contains a ratchet contrivance which allows the nut to go on the bolt easily but prevents its backing off except when a pin is inserted through the small hole parallel with the bolt. The ratchet contrivance consists of a steel ball in a hole at a tangent with the bolt. A spring drives the ball against the bolt thread and the pin release operates by throwing the ball out of contact with the thread. It is made by the Auto Accessory Sales Co.



Vesuvius Protector And Intensifier.

SUTTER CRANK SHAFT TOOL

THIS tool is designed to true any shaft from 1 1/4 to 3 inches in diameter. It has three different width blades, and will work either on a lathe or by hand. The tool is built substantially and simply and requires no tools to adjust it.

It is equipped with universal gauges for regulating the thickness of cut. A lock on the tool carriage enables the operator to lock the carriage at any point. The lathe attachment can be detached when the tool is used by hand. Made by the Fred Shaw Mfg. Co.

ATLAS MIKRO-INDICATOR CYLINDER GAUGE

THE ATLAS Mikro-Indicator cylinder gauge is for testing roundness, straightness, size or scoring of cylinders. It consists of two units, the indicator or dial with two contact points (which can be removed and used as an inside micrometer) and a saddle with a supporting stud upon which the indicator dial is placed and which holds it at right angles to the axis of the cylinder. The indicator measures exact diameters from 2 1/2 inches to 5 inches; the adjustable rear contact passing through the saddle plate and riding the cylinder diametrically opposite the front contact point. The indicator has auxiliary uses, being adapted for nearly all work requiring a dial indicator, such as for testing turned work in lathes, crankshaft bearings in a truing fixture, direct reading inside micrometer, etc. Made by George H. Wilkins Co.

ONLI-1 SOCKET WRENCH

THIS SOCKET wrench uses two bevel gears, one on the handle turning the main shaft in the tube, this in turn turning the socket shaft. If the nut is too tight to respond to the turn of the handle, the whole wrench can be made rigid from handle to socket by a simple adjustment of the socket pin. A set of six sockets fits sixteen sizes of bolts and nuts and there is an extension bar for unusually inaccessible places. Made by the King Tool Co.

VESUVIUS PROTECTOR AND INTENSIFIER

THIS DEVICE fits right on top of any spark plug; the body protects the insulator, while the top acts as an intensifier. The spark can be seen through a hole in the top, and jumps between the little pointer in the chamber of the protector and intensifier and the wall which secures it to the spark plug. No tools are required to connect the device. It is attached by taking off the wire on top of the spark plug, screwing on the device and connecting the wire. Made by Mosler Metal Products Corporation.

JIFFY DUMP BODY

THE Grisco-Russell Co. announce a new dump body for Ford one-ton trucks, known as the Jiffy Dump Body. Both construction and operation are simple. A feature is the scale balance support which eliminates the use of a hoist. The body dumps automatically upon releasing of the locking device. The driver can operate the device from the driver's seat without stopping the truck.

SILVER BAR RADIATOR CAPS

THE M. L. Oberdorfer Brass Co. have placed on the market sixteen different models of bar radiator caps which fit practically all cars. The Ford size is specially designed so that no drilling is necessary for a Moto-Meter as a circular disk can be punched out for this purpose. Ford size is 6 in., Ford and Chevrolet 490 is 6 1/2 in., all other models are 8 1/4 in., except Willys-Knight, which is 9 1/4 inches. The material is nickel silver and the handles are always cool so that the caps can be removed when the radiator is hot. The caps are made of solid nickel so that there is no plating to wear off.

CHEVROLET CLUTCH CONTROL

SOMETHING new in the way of a clutch control for the Chevrolet 490 is being manufactured by the Clark-Turner Piston Company, known as the Deluxe Velvet Clutch Control. It will, the makers say, eliminate all tendency of the clutch to jerk, seize, or take hold prematurely. It is said that the pressure of one finger is sufficient to throw the clutch out. The device is simple, and easy to install.

GRAYNIE SPARE TIRE LOCK

THIS spare tire lock consists of a chain which is hardened to resist chisel, hack saw, file, bolt clippers, etc. The lock is approved by the Underwriters and can only be opened with the driver's own key. It is made by The Graynie Corp.

DETECTOR FOR CRYSTAL RECEIVING SETS

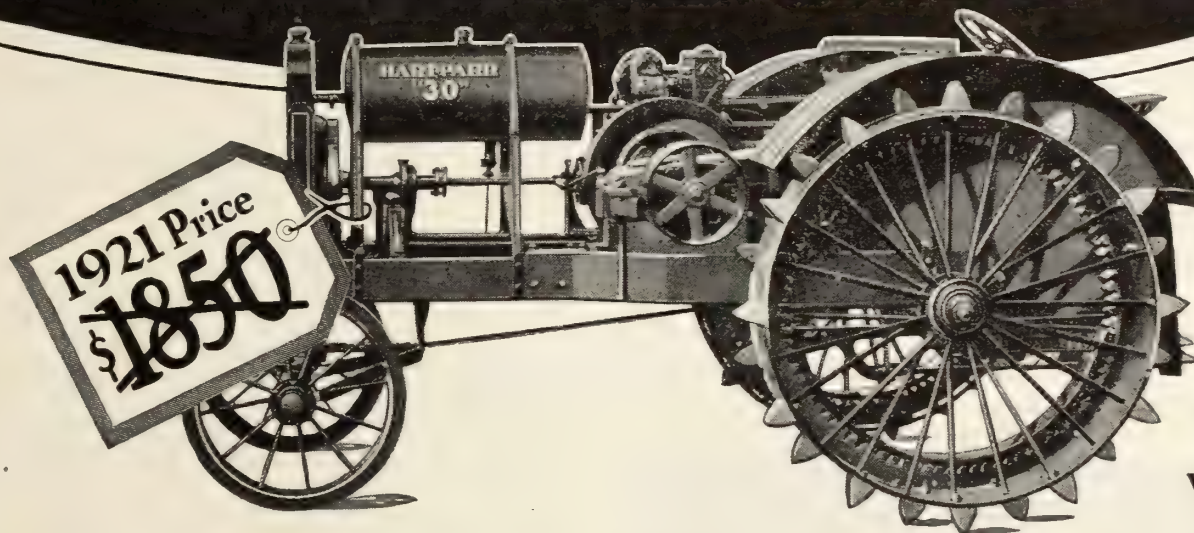
THE Penberthy Injector Co. have placed on the market a detector for crystal receiving radio sets. The crystal is held in the lower cup which is insulated from the upper part. The contact is a brush made of fine hard brass wire. The contact tension is supplied by a spring. The brush rests on the crystal and when a sensitive spot is found numerous wires hold it in place.

HART-PARR "30"

3-PLOW TRACTOR

Cut to \$1250

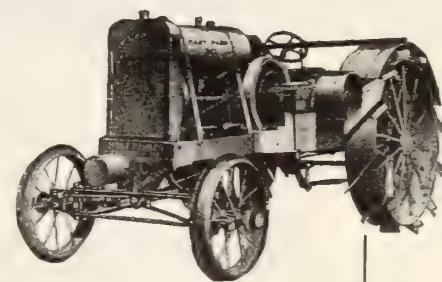
F. O. B. WINNIPEG



F. O. B.
WINNIPEG

A Straight Cut of \$600 From Last Year's Price

Comparison will show that the Hart-Parr "30" at \$1,250 is the cheapest farm power in the world. The tractor we offer at this unparalleled low price is the same identical Hart-Parr "30" that has so consistently won the foremost fuel economy and power tests in recent years. Thousands of farmers have flooded the factory and our dealers with inquiries and orders because of this spectacular price reduction. The Hart-Parr "30" is priced so low that every farmer can afford to own one. Scores of our dealers have been doing a volume of business for the past two months.



Our Contract Means Real Money for YOU!

There is no other contract written by any concern that gives the dealer a bigger money making opportunity. This new contract gives the dealer sufficient territory to secure volume sales, and provides for thorough co-operation in advertising, sales and service. Someone is going to represent us in your community this year. You want this contract—grab it before some other dealer does. Write or wire your reservation now.

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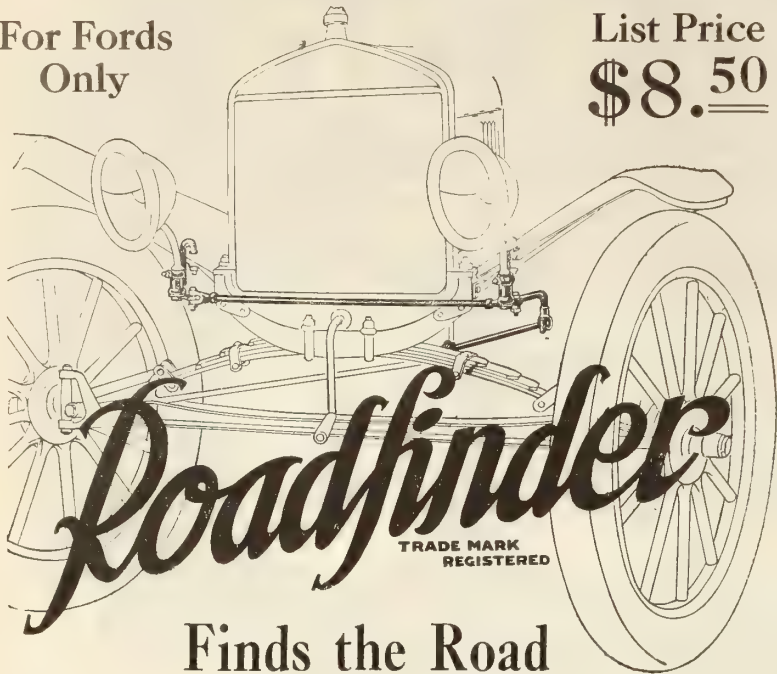
Founders of the Tractor Industry
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Not-an Accessory, But-a Necessity

For Fords
Only

List Price
\$8.50



Finds the Road

It turns the lights of your car with the wheels so that you always drive in the light and not out of it when turning corners, taking curves, meeting or passing traffic.

Roadfinder means safe night driving, by preventing accidents. Roadfinder finds the road, always—anywhere. It is a genuine necessity.

See Exhibit at Toronto Fair

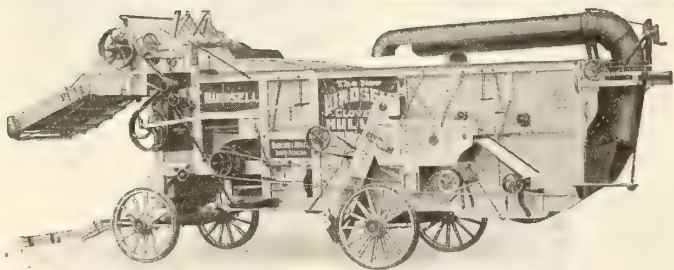
Dealers Wanted Everywhere

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ROADFINDER LIMITED

HAMILTON, CANADA

The Farm Tractor can be made more profitable by using it more days of the year—



Every Dealer has Farmer patrons who own idle tractors. Clover Seed is a good crop and a Tractor hitched to a Birdsell Huller makes a paying combination. Your community may need a Clover Huller this year. Your opportunity.

**BIRDSSELL-GEHL SILO FILLERS
ANN ARBOR HAY PRESSES**

You may have need of some of these machines. We can supply promptly from our warehouses here. A full line of repair parts also carried here.

Our traveler will see you whenever his services are required. Write us when you have live prospects.

BIRDSSELL MANUFACTURING CO., Toronto, Canada
Foot of George Street.

FORD MAKES RECORD PRODUCTION IN JUNE

FORD cars, trucks and tractors established a new sales record in June with a total of 148,439, an average of 5,709 a day. The Ford Co. of Canada sales were 6,054 and 9,435 were sold by the European and South American branches. Total sales for the first six months of 1922 ending in June were 652,251 which is considerably ahead of any previous half-year record. July sales are expected to equal or surpass those of June.

Ford of Canada has declared a cash dividend of 15 per cent. payable July 20 to stock record July 15. Stock of the company, which sold last January at 260 has passed 440. The company has had on hand cash exceeding \$10,000,000 when its current needs were not more than \$3,000,000.

RUSSELL MOTOR CO. RESUMES DIVIDEND

AFTER a lapse of a single quarter, the Russell Motor Car Co. directors at a meeting recently, decided to resume dividends on the common. It was determined to make the usual quarterly disbursement of 1 1/4 per cent. on the preferred and, in addition, to declare payment of 1 1/4 per cent. on the common. Both these dividends are payable August 1 to shareholders of record July 20.

The dividend on the common for the following quarter was cut from 7 to 4 per cent. per annum and omitted entirely when the time for the May distribution came around. The omission of the dividend on the common was due entirely to trade conditions. Officials state that a very satisfactory business is now being done.

GENERAL MOTORS STATEMENT SHOWS RECORD EARNINGS

271,022 Motor Vehicles Turned Out in June

THE General Motors Corp. has issued a statement for the six months ending June 30 last. Net sales are reported as \$218,490,887; net earnings before Federal taxes and interest as \$35,116,481; net earnings after all charges as \$29,997,391; net amount earned on the common stock \$26,839,391.

The statement shows that in the second quarter of the year net sales were \$137,800,000, as against \$80,590,887 in the first quarter. Net earnings in the last quarter amounted to \$25,970,000, contrasted with \$9,146,481 in the previous quarter.

During the six months ending at the close of last month about \$6,200,000 net has been added to reserves for depreciation of real estate, plants and equipment, the balance in the reserves now standing at slightly more than \$43,700,008. All loans at banks were paid off by June 30 and, except for about \$5,400,000 of purchase money obligations, the corporation has no indebtedness underlying its preferred and debenture stocks except ordinary accounts payable for merchandise, payrolls, etc. Cash in banks at the close of last month was about \$35,000,000.

The net working capital June 30 was approximately \$123,000,000, an increase of \$26,000,000 from the condition at the close of December, 1921.

The indicated production of 271,022 motor vehicles in June established a monthly record. It is estimated that of this number about 10 per cent., or 27,000, were trucks, leaving 244,000 passenger cars, a gain of six per cent. over 231,619 in May, the previous record month. Production of passenger vehicles for the six months to June 30 was 1,016,742 against 1,514,000 in the full year 1921.



**INTERNATIONAL
ELECTRIC CO., Ltd.**

97 Bleury St. MONTREAL

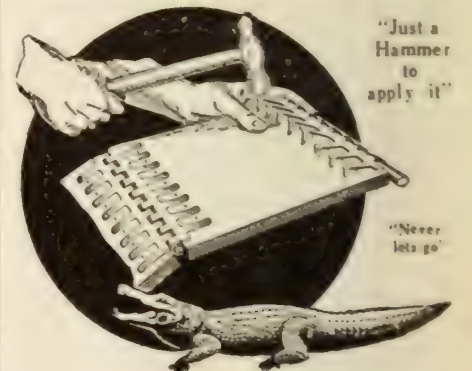
THE LARGEST, MOST UP-TO-DATE, BEST EQUIPPED REPAIR SHOP TO RENDER SERVICE ON ELECTRICAL EQUIPMENTS ON AUTOMOBILES, TRUCKS, MOTOR BOATS, ETC.

Largest Stock of Spare Parts in Canada

Prompt and Courteous Service

PHONE PLATEAU 90

"The Strongest on Earth"
—And the Quickest and Easiest to put on.



Carry a Stock the Year Round

Five sizes will meet any ordinary requirement of your trade.

Size 35 for heavy 5 or 6 ply tractor and thresher belts.

Size 27 for heavy 4 ply belts.

Sizes 25 and 20 for farm engine belts.

Size 15 for cream separator and light driven belts.

There's nothing else like Alligator Steel Belt Lacing—no other lacing will make as strong and permanent a joint. Only three minutes to make a permanent hinge joint no thicker than the belt.

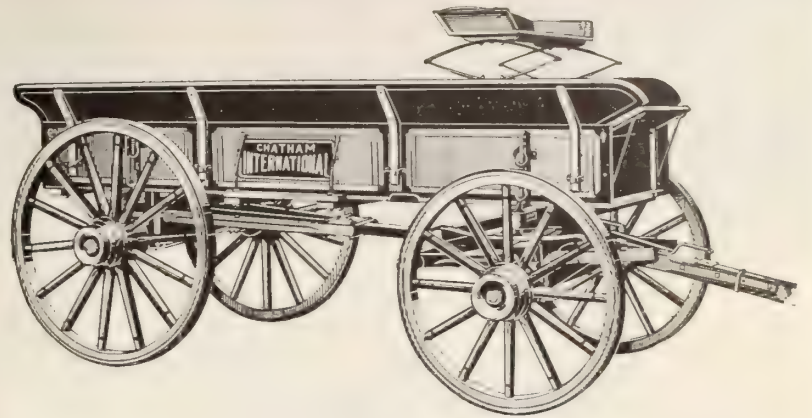
Your jobber has it—or we'll send sample, valuable book and prices.

FLEXIBLE STEEL LACING CO.
4653 Lexington St., Chicago, U.S.A.

ALLIGATOR
TRADE MARK REG. U.S. PAT. OFFICE
STEEL BELT LACING

*In England, 135 Finsbury Pavement,
LONDON, E.C., 2.*

Chatham- International Wagons



This Fall should prove a good wagon season—especially good for the McCormick-Deering dealer with Chatham-International wagons to sell. Farmers throughout the Dominion have confidence in this name. They know it never has been and never will be put on a product not up to the Chatham-International standard of quality. You can help maintain this confidence by telling your wagon prospects *all about* the Chatham-International. Go over its features, one by one. Prove to your customers that a better proportioned, better ironed, and better built wagon cannot be found—regardless of price.

Material Used in Chatham International Wagons.

Wheels

Hubs—strictly white oak.
Bent rims—white oak, straight grained.
Rim rivets—both sides of each spoke.
Spokes—"A" grade hickory or oak.
Tires—International high carbon steel, extra wide, round edge.
Skein boxes—dust-proof collar, extra heavy wide shoulder.

Gears

Axles—clear, tough, selected hickory, large dimensions.
Sandboard—choice oak.
Bolsters—choice oak.
Stakes—selected hickory or oak—International pattern.
Reach—selected, straight-grained oak, 3x4-inch, heavily ironed.
Rear gear reach box—International pattern, one-piece.

Hounds—straight-grained oak, extra thick and long, wide apart on axles.
Tongue—special width to give greatest possible strength sideways.
Doubletrees—selected hickory, ironed on top, bottom, back and front.
Singletrees—selected hickory, strap ends.
Sandboard plate—forged from one piece of high-carbon steel.
Skeins—special iron and design, extra heavy, with extra wide bell opening.

Wagon Boxes

Sides and end boards—best grade of lumber for the purpose, free from knots.
Bottoms—long leaf yellow pine, double thickness over front and rear bolsters.
Cross sills—hardwood—International pattern.
Wheel rub irons—double thick, special pattern.

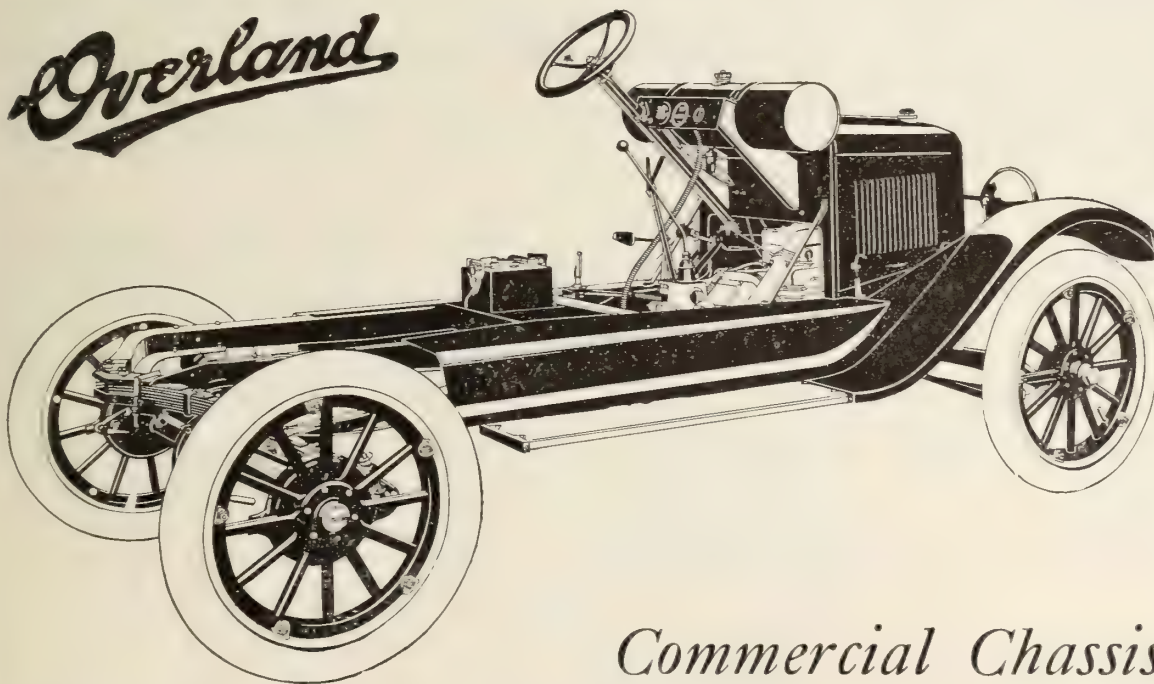
INTERNATIONAL HARVESTER COMPANY

OF CANADA LTD

HAMILTON CANADA

WESTERN BRANCHES—BRANDON, WINNIPEG, MAN.; CALGARY, EDMONTON, LETHBRIDGE, ALTA.; ESTEVAN, N. BATTLEFORD, REGINA, SASKATOON, YORKTON, SASK.
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Overland



Commercial Chassis

The New Commercial Car

Overland dealers all over Canada have reported an increased demand for a commercial car embodying the sturdy, reliable and economical features of the Overland passenger car.

Overland now announces a chassis that can be fitted with a standard delivery body, and it will possess the structural advantages that have established the Overland as a really remarkable car.

Overland commercial chassis has the famous triplex springs—its strong frame extends clear under the body—its axles are exceptionally heavy and strong—its motor is powerful yet economical—and its transmission is of standard selective gear type, three speeds forward and reverse. Write for full details.

SEE THIS CAR AT CANADIAN NATIONAL EXHIBITION—IN THE ARENA

Willys-Overland Limited, Toronto, Canada

A Strong Dealer Organization

Willys-Overland Limited is a Canadian industry with its factory and head office in Toronto, with its own branches in Toronto, Montreal, Winnipeg and Regina and with dealer representation in every province. Its increased sales in 1922 have been largely due to the addition of many dealers of the first class and this organization is being constantly strengthened.

Business Opportunities For Business Men

Wherever we are unrepresented we are open to consider a contract for the full Overland line—Overland passenger cars, Overland commercial chassis, Willys-Knight cars. In some places we may consider special representation for the commercial car as there is a big opening for wide-awake men to specialize in this business. If you are seeking investment in a paying business write

Sales Manager:

Willys-Overland Limited
Toronto, Canada

CANADIAN MOTOR AND TRACTOR TRADE JOURNAL BUYERS DIRECTORY

This directory will help you with your buying and your planning. The advertisers listed here are thoroughly reliable and leaders in their respective fields. They are looking for live, wide-awake representatives. Study their advertisements carefully because they contain valuable information which will dovetail with your plans. We are glad to go to the trouble of arranging this list—to make it easy for you to select new lines. If it so happens that what you want is not here, write us, and we will tell you where to get it.

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Chalmers Motor Car Co., Detroit and Windsor.
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Canadian National Carbon Co., Toronto.
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Kemp Metal Auto Wheel Co., Toronto.
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Motor Necessities, Ltd., 231 Somerset St., Winnipeg.
Pressure Proof Rings Co., Montreal, Que.
Penetang Carriage Co., Penetang, Ont., and Toronto.
Richardson & Bureau, Montreal, Que.
Shaw Auto Salvage Parts Supply Co., Toronto.
Thexton Machine Wks., 736 Dundas St. E., Toronto.
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AUTOMOBILE WHEELS

Kemp Metal Auto Wheel Co., Toronto.

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International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto

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International Harvester Co., of Can., Ltd., Hamilton, Ont.

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John Deere Mfg. Co., Ltd., Welland, Ont.
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Peter Hamilton Co., Ltd., Peterboro, Ont.

CULTIVATORS

John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

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A. B. Jardine & Co., Ltd., Hespeler, Ont.

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International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto

DRILLS, GRAIN

John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

DRILLS, GRAIN

International Harvester Co., of Can., Ltd., Hamilton, Ont.

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Dominion Truck Equipment Co., Ltd., Kitchener, Ont.

ELECTRICAL EQUIPMENT

Canadian National Carbon Co., Toronto.

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Cochrane Foundry and Machine Wks., Tillsonburg, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto
J. I. Case Threshing Machine Co., Inc., Racine, Wis.

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A. B. Jardine & Co., Ltd., Hespeler, Ont.

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FEEDERS

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

FARM MACHINERY

Aermotor Company, Chicago, Ill.
Birdsell Mfg. Co., Toronto and South Bend, Ind.
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FLOOR CRANES

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GRINDSTONES

S. Vessot & Co., Joliet, P.Q.

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J. I. Case Threshing Machine Co., Inc., Racine, Wis.

HAY LOADERS

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John Deere Mfg. Co., Ltd., Welland, Ont.

HAY PRESSES

International Harvester Co., of Can., Ltd., Hamilton, Ont.
Birdsell Mfg. Co., Toronto and South Bend, Ind.

HOISTS

Dominion Truck Equipment Co., Ltd., Kitchener, Ont.

HOOKS AND HANDLES

Flexible Steel Lacing Co., Chicago, Ill., and London, Eng.

LAMP GUARDS

Flexible Steel Lacing Co., Chicago, Ill., and London, Eng.

LIGHTING SYSTEMS AND ACCESSORIES

Canadian National Carbon Co., Toronto.
R. A. Lister Co. (Canada), Ltd., Toronto

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Spedolene Refining & Mfg. Co., Ltd., Montreal.

MACHINE TOOLS

Butterfield & Co., Rock Island, Que.
Windsor Machine and Tool Works, Windsor.

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John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

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John Deere Mfg. Co., Ltd., Welland, Ont.

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De Laval Co., Ltd., Peterboro.
R. A. Lister Co. (Canada), Ltd., Toronto

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Spramotor Co., London, Ont.

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Lamontagne, Ltd., Montreal, Que.
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International Harvester Co., of Can., Ltd., Hamilton, Ont.
Whitney Tractor Co., Cleveland, Ohio.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.
John Deere Mfg. Co., Ltd., Welland, Ont.

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International Harvester Co., of Can., Ltd., Hamilton, Ont.
John Deere Mfg. Co., Ltd., Welland, Ont.

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International Harvester Co., of Can., Ltd., Hamilton, Ont.

ROAD GRADERS

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

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SCUFFLERS

International Harvester Co., of Can., Ltd., Hamilton, Ont.
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SLEIGHS

International Harvester Co., of Can., Ltd., Hamilton, Ont.

SILO FILLERS

International Harvester Co., of Can., Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.
Birdsell Mfg. Co., Toronto and South Bend, Ind.

SEPARATORS (CREAM)

De Laval Co., Ltd., Peterboro.
R. A. Lister Co. (of Canada), Ltd., Toronto, Ont.

SPRAYING EQUIPMENT

John Deere Mfg. Co., Ltd., Welland, Ont.

SPREADERS, MANURE

John Deere Mfg. Co., Ltd., Welland, Ont.
International Harvester Co., of Can., Ltd., Hamilton, Ont.

STACKERS

J. I. Case Threshing Machine Co., Inc., Racine, Wis.

TRACTORS

Advance—Rumley Thresher Co., Inc., Toronto, Winnipeg, Calgary.
Cleveland Tractor Co., Cleveland, Ohio.
Gary Motor Truck Co., Toronto.
Hart-Parr Co., Charles City, Iowa.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
R. A. Lister Co. (Canada), Ltd., Toronto
Whitney Tractor Co., Cleveland, Ohio.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.
John Deere Mfg. Co., Ltd., Welland, Ont.

TRACTOR PLOWS

International Harvester Co., of Can., Ltd., Hamilton, Ont.
Cleveland Tractor Co., Cleveland, Ohio.
John Deere Mfg. Co., Ltd., Welland, Ont.

TOOLS

Butterfield & Co., Rock Island, Que.
Windsor Machine and Tool Works, Windsor.

THRESHERS

Advance—Rumley Thresher Co., Inc., Toronto, Winnipeg, Calgary.
Birdsell Mfg. Co., Toronto and South Bend, Ind.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.
R. A. Lister Co. (Canada), Ltd., Toronto

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Premier Tire & Rubber Co., Ltd., Toronto and Beamsville, Ont.

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Dominion Truck & Equipment Co., Ltd., Kitchener, Ont.
Gary Motor Truck Co., Toronto.
International Harvester Co., of Can., Ltd., Hamilton, Ont.
J. I. Case Threshing Machine Co., Inc., Racine, Wis.
Ruggles Motor Truck Co., Ltd., London.

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Lamontagne, Ltd., Montreal.

WAGONS

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Aermotor Company, Chicago, Ill.

Hints to Buyers

WedgeRite Piston Rings

The standard by which all rings expanding in the groove are judged. WedgeRite piston rings today are better than ever and in addition to this the WEDGERITE PISTON RING is first to reach a SCIENTIFICALLY correct degree of FULL FLEXIBILITY insuring a uniform wall and groove pressure.

Manufactured by

The Piston Ring Co., Limited

Montreal - Canada

The Penetang Carriage Co., Ltd.

Factory—Penetang, Ontario

Sales Office: 742 Yonge St., Toronto

**Manufacturers of
High Grade Commercial Bodies**

GASOLINE MOTORS \$50.00 and up

4 CYLINDER—4 CYCLE

20 horsepower and up, these motors are taken from high-priced automobiles, and can be used for any purpose where power is required. Hundreds of these motors in use all over Canada are giving satisfaction in motor boats, tractors, cutting boxes, sawing wood, running machinery, etc. We also carry the largest stock in Canada of slightly used parts for motor cars of all kinds.

Satisfaction or refund in full, our motto.

Shaw's Auto Salvage Part Supply
927-31 Dufferin Street
TORONTO

SAFES FOR SALE

One J. & J. Taylor Safe, inside dimensions 15 inches deep, 2 feet 6 inches wide, three feet, 11½ inches high and fitted with a built in compartment. Price \$250.00.

One J. & J. Taylor Safe 18 inches deep, two feet 9 inches wide, four feet 5 inches high, fitted with a steel compartment. Both safes are in good condition and can be bought at a price that will save considerable money to the purchaser. Price \$200.00.

BOX 100, MOTOR & TRACTOR, 153 University Ave., Toronto

"Fills Groove
and Cylinder
for the life
of the ring"



"Positive
Expansion
directions"
in both

Pat. Mar. 2, 1915, Feb. 29, 1916

PRESSURE-PROOF PISTON RINGS

TEMPORARILY, yes! 'most any piston ring will overcome oilpumping, poor compression, etc.—but for PERMANENCY there's only one ring to consider, that's the PRESSURE-PROOF.

Put a trial set in the worst performing car you know of—there you'll find PROOF that they're PRESSURE-PROOF, absolutely. PRESSURE-PROOF Jr. 2-piece and PRESSURE-PROOF 3-piece rings from any of the following:

James Cowan, London, Ont.

Can. Fairbanks-Morse, St. John, N.B.

Rice Lewis, Toronto

J. H. Ashdown Hardware Co., Winnipeg, Calgary, Saskatoon and Edmonton

Lewis Bros., Montreal

C. Kloeppfer, Toronto

Samuel Trees & Co., Toronto

Manufactured by

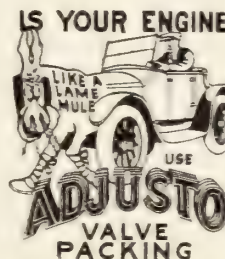
PRESSURE-PROOF RINGS, LIMITED

SHERBROOKE

QUE.

NEW CARS FOR OLD

Good-bye 33 Car Troubles



Adjusto has antiquated valve repairs. A superior grade compact wool washer contained in an adjustable steel thimble; stops wear and air leakage into cylinders, silences valves, repowers your car, gives great flexibility, pep and more mileage. Mechanics highly recommend it. Easily installed. No after adjustment necessary. Retail \$2.00 for a Ford set, or \$2.60 for a set of 4 for any car made, \$3.90 for 6. Write for free booklet. Ask your jobber. 10 days' money-back guaranteed.

Motor Necessities Co., Somerset Blk.

Winnipeg, Man.

Dealers, Attention!

Get our propositions on

Portable Saw-Mills,
Gang and Single Edgers.
Gasoline and Kerosene
Engines

Emery-Grinders
Water Bowls,
Plow-points, Etc.

GRAY IRON AND BRASS CASTINGS

The Cochrane Foundry & Machine Works

Tillsonburg

Ontario

Farm Implement Salesman Wanted

Farm implement salesman, capable to close annual settlements with dealers and collect farmers' paper. Must be a producer. Western Ontario territory. Apply Box —, Canadian Motor & Tractor Trade Journal, 143-153 University Ave., Toronto.

ALBERTA

BLAIRMORE.—P. Smallwood, proprietor of the Smallwood Garage, was badly burned about the wrists and face recently when the acetylene tank with which he was working caught fire—the tank had a faulty valve.

BRITISH COLUMBIA

VICTORIA.—The automotive dealers of Victoria held a monster picnic recently when upwards of eight hundred people attended. Every prominent automotive dealer in the city was represented.

CRANBROOK.—T. E. Cooper has sold the Kootenay Garage to L. Paulson, who has been in charge of the battery work at the garage. The business is a substantial one and carries with it the agencies for Chevrolet and Dodge cars.

VANCOUVER.—A new auto tourist camp has been prepared in this city for visiting motorists and is already being extensively patronized. One hundred and sixty acres have been set aside for this purpose, for the accommodation of two hundred autos and tents, all parking spaces being under the shelter of trees. Cooking and dining shelters, each with a large cook stove and dining tables, have been built in different parts of the ground, with shower baths, laundry facilities and every other convenience. A bungalow is also provided for social purposes.

MANITOBA

McCREARY.—J. A. Cumming has equipped his garage with modern machinery. Among the machines are a lathe, acetylene and brazing outfit, vulcanizing plant and a complete battery service outfit.

ONTARIO

PAISLEY.—Thompson Bros., of the South End Garage, have secured the agency for Durant cars.

WITH THE MANUFACTURERS

The Paige Detroit Automobile Co. have leased a large factory in Walkerville, Ont., where this fall they will start manufacturing a Canadian Paige car.

Edward V. Hartford, creator of the Hartford shock absorber and a number of other automotive devices, died in New York recently after a brief illness.

The Packard Motor Car Co. has developed a system of standardized service. This system gives flat rate specifications for performing about 400 of the commonest repair jobs.

The Buick Motor Co. has taken over the plant of the Scripps-Booth in Detroit, to use as an assembly plant for Buick closed car lines. The plant will have a capacity of 400 cars per day.

The Splitdorf Electrical Co. announce that C. Wilson, who has been in charge of their Toronto branch for some time, has been recalled to the head office at Newark, and has been succeeded by P. V. Brennan.

L. J. Ollier, vice-president in charge of export sales, has resigned from the Studebaker Corp., and is now in Europe on an extended trip. H. A. Biggs will add export sales to his domestic sales.

E. E. Russell, vice-president in charge of purchasing of the J. I. Case Threshing Machine Co., Racine, Wis., has just returned from a three months trip through Europe, where he has been studying business conditions.

Announcement is made by the Cleveland Tractor Company of the appointment of Mr. Edward Soule as foreign sales manager with headquarters at the company's general offices in Cleveland. Mr. Soule's early career as an attorney-at-law lead him to appreciate the value

ST. THOMAS.—Of the 24 building permits issued by the city engineer during July, 12 were for new garages, evidence that the automobile dealers have been busy in St. Thomas this summer.

TORONTO.—George Dane, who for 30 years was a traveller for the Ontario Wind Engine and Pump Co., Toronto, died recently at his residence in Toronto. He had been suffering from heart trouble for the past year.

LONDON.—The local automobile dealers are showing the biggest increase in years. By the end of the year there will be close to 5,000 cars in London, and well over 8,000 in the County of Middlesex. With indications of a good harvest dealers expect the business to be maintained.

MIDLAND.—E. Brown & Son, proprietors of the Chevrolet Garage, have placed two large signs at two of the main entrances to the town to attract tourists. The signs bear the words, "Welcome to Midland," and underneath the firm's name. Large numbers of tourists have been attracted to the garage by these signs and the Chevrolet Garage has been kept busy.

TORONTO.—Officials of the local lodge of the International Association of Machinists recently launched successfully an organization among automobile mechanics in local garages and the youths who are apprenticed in the trade. The purpose of the association is to establish a thorough apprenticeship system, issuing cards to journeymen after they have passed certain tests.

SASKATCHEWAN

MELFORT.—The Canadian Motor Co.'s garage which was gutted by fire recently is being restored. The garage will be enlarged considerably and in order to reduce the fire hazard a fire wall will be built between the workshop and the showroom.

of law training in business and brought him, after a term of years with the Studebaker Corporation's Foreign Department, into the position of assistant foreign sales manager of the Cleveland Tractor Company. He held this position from the beginning of 1917 until his recent promotion to the managerial responsibility. Mr. Soule reports a very decided improvement in foreign tractor business during the last sixty days.

FORD COMPANY EXPANDS

AN addition to the plant of the Ford Motor Company of Canada at Ford City to cover approximately 125 acres and to cost in the neighborhood of \$6,000,000 is planned for the near future, according to a statement by Wallace R. Campbell, vice-president and treasurer of the company. The necessary property for the sites has been secured at an approximate cost of \$1,000,000.

It is expected that the production of the Canadian plant will be doubled immediately the new plant starts to operate and the plans are to turn out 500 cars a day in place of the 250 being made at present. At the same time the expansion is on a basis to permit an increase of the output as high as 1,000 cars per day.

JUNE PRODUCTION OF CARS SHOWS NEW RECORD

ANOTHER new record for production of passenger cars and trucks was established by the automotive industry in June with a total of 271,000, says Automotive Industries. This exceeds by 15,000 the May record of 256,000. This would make a total for the second quarter of 746,000 and for the first half year of approximately 1,120,000.

CAN. FAIRBANKS-MORSE EXTEND OPERATIONS IN THE WEST

THOMAS McMillan, president Can. Fairbanks-Morse Co., Ltd., recently returned from Western Canada, having made an inspection tour of the company's western branches. The agricultural outlook in the west is excellent, and as this factor is more essentially the barometer of conditions in that country than anywhere else, Mr. McMillan feels that prospects for improved general conditions are good, and that his firm will participate in the better trend of matters.

Already his firm has experienced better business in the Maritimes and in the province of Ontario. The latter improvement was due largely to the prosperity of the automotive industry. Better business conditions originated in the east, and moved westward. The large manufacturing firms in Montreal and vicinity were somewhat slower to get under way than the smaller plants in Ontario. For that reason, his firm was getting, at the moment, more business in Ontario. Another factor that handicapped, for the time being, business in Montreal, was the fact that the railways were keeping out of the market.

Mr. McMillan believes that by the time the western crops are harvested, business will have greatly improved. The western farmer, of late, has not been so free to gamble on the future and now waits until his crop is harvested before he goes into the market for his requirements. His company have planned to extend to a considerable extent, their operations in the West. The rate at which these plans of extension will be consummated would, of course, depend upon general conditions, but the expansion would be carried out just as fast as the demands of the country required.

Although confident that the worst of the depression has been passed, Mr. McMillan does not feel that there will be any spectacular recovery overnight, or that the volume of business enjoyed in the war years will be reached for a decade, at least.

The American associate company report business very good, and improving every week, and as these reports originate from offices located in all of the larger centres of the States, they truly reflect conditions across the border. This situation is bound to show itself in Canada from ninety to one hundred days later, according to Mr. McMillan's opinion which is based on many years' close observance.

FARMERS OWN MOST CARS IN ONTARIO

AN analysis of Ontario passenger and commercial car registrations for the year 1921 has just been completed and again it shows farmers to be far in the lead as owners of passenger cars with tradesmen running them a poor second. Merchants lead in the ownership of commercial cars, cartage agents run a poor second and farmers come in as a fairly good third. In the aggregate, farmers lead all classes as owners of self-propelled vehicles, as they possess 65,904 of the 20,532 passenger and commercial cars registered in the province.

Of the 181,978 passenger cars owned in Ontario, farmers own 64,045. Tradesmen come next with 23,680 cars and merchants are third with 16,700. "Unoccupied" persons rank fourth as car owners with 11,369 machines to their credit. "Unoccupied" means men and women owners who are classified under the terms of "gentlemen" or "gentlewomen," their occupation being one that does not fit into the various classi-

fications which are recognized. Next to unoccupied rank managers with 8,018 cars to their credit. The other classifications are:

Unclassified, 7,985; professional, 6,748; agents, 5,408; commercial travellers, 5,311; livery and garages, 5,187; manufacturers, 4,820; laborers, 4,059; clerks, 3,969; doctors, 3,934; contractors, 2,961; firms, 2,623; insurance agents, 1,190; real estate agents, 1,098; drovers, 651; cartage agents, 532; undertakers, 406; police, 303; municipal corporations, 212; Ontario Government, 204; Dominion government, 155; banks, 142; public utility corporations, 130; soldiers, 114; railways, 17; and hospitals, 7.

Ownership of commercial cars is as follows: Merchants, 4,924; firms, 4,248; cartage agents, 2,229; farmers, 1,859; tradesmen, 1,108; manufacturers, 1,062; contractors, 713; livery and garages, 535; unclassified, 378; undertakers, 362; agents, 359; unoccupied, 329; public utilities, 312; municipal corporations, 293; laborers, 175; Ontario government, 161; Dominion government, 132; managers, 92; commercial travellers, 51; railways, 47; drovers, 46; clerks, 37; professional, 30; police, 22; real estate agents, 13; hospitals, 12; insurance agents, 11; doctors, 7; soldiers, 5; banks, 2.

Of the passenger cars registered in Ontario, 88,150 are of 22.5 horsepower. The figures for other power ratings are: 15 h.p., 154; 16-20 h.p., 24,895; 21-25 h.p., 43,993; 26-30 h.p., 20,164; 31-35 h.p., 2,394; 36-40 h.p., 1,550; 41-45 h.p., 382; 46-50 h.p., 154; 51 h.p. and more, 16. There are 126 electric vehicles. Of all the cars owned in the province, 181,850 are powered by internal combustion engines, 126 by electric motors and two by steam motors. Touring cars number 154,652; runabouts, 11,293; coupes, 6,887; sedans, 9,030; taxicabs, 86, and buses 30.

Commercial cars are classified as follows: One-half ton, 2,163; 1-ton, 13,863; 1½-ton, 1,286; 2-ton, 956; 2½-ton, 237; 3-ton, 197; 3½-ton, 330; 4-ton, 68; 4½-ton, 19; 5-ton, 281; 5½-ton, 10; 6-ton, 10; 6½-ton, 2; 7-ton, 1. There are 50 electric trucks, 81 fire trucks, and four steam trucks. Gasoline driven trucks total 19,500.

Models of trucks are classified as follows: Buses, 230; delivery cars, 4,002; trucks, 14,848; ambulances, 107; hearses, 239; casket wagons, 36; patrols, 11.

GETTING READY TO MEET BIG DEMANDS

THOMAS Bradshaw, general manager of the Massey-Harris Co., stated recently that there is a rift in the clouds that have been hanging over the implement industry for the present year; he is convinced of the existence of the silver lining and his company is preparing for better business. Mr. Bradshaw indicated that a more active production schedule had been decided upon for the autumn and winter months.

In both the Toronto and Brantford plants of the company manufacturing operations will be concluded by August 15 at the latest, when the annual inventory-taking period begins.

Stock-taking will consume approximately two weeks, and it is planned to resume production between September 1 and 15, probably close to the latter date. While operations have been rather slack in recent months, the management feels sufficiently confident about the future that a more active program of production will be commenced. This will probably involve the employment of between 1,500 and 1,600 men at the Toronto plant and between 800 and 900 men at the Brantford works.



The Imperial Polarine Sales Rack holds a complete stock of Imperial Polarine Motor Oils in the well-known litho-sealed cans. It stands seven feet high, is 12 inches deep and five feet wide (only occupies about five square feet of floor space). Rack is double-faced for convenient display in aisle or window, and oil can be taken out from either side.

This Rack is constructed of good quality steel and painted in royal blue. It is lettered on both sides calling attention to the Imperial Chart of Recommendations which specifies the grade of Imperial Polarine Oil or Grease for every make of car and truck.

Rack is shipped to you assembled, ready to install. It is built to last for years and give good service.

A Salesman who asks No Pay

The Imperial Polarine Sales Rack provides a central display for Imperial Polarine Motor Oils.

It automatically makes sales for you while customers are waiting to be served.

It saves time in making sales and filling orders by having stock always conveniently at hand.

It enables you to guarantee better satisfaction to your trade by selling them the proper grade of Imperial

Polarine Motor Oils exactly as recommended on the Imperial Charts which are prominently displayed on each rack.

Picture This Rack Standing in Your Store.—Think of the many advantages of having such a clean, neat display of oil always confronting your customers. Ask the Imperial Oil Salesman or write to our nearest branch for details regarding our special offer on this rack.

IMPERIAL OIL LIMITED

Canadian Company

Canadian Capital

Canadian Workmen

Only the
KEMP
Metal Auto Wheel
Could Stand This

AFTER 80,000 miles of severe testing; running through sand, clay, ditches, and the roughest of roads, the KEMP Wheels on a car loaded to capacity were dismantled and closely inspected. They were found to be none the worse for wear and showed absolutely no sign of distortion of parts.

In further actual road tests the KEMP Wheels withstood the severest shocks that could be devised—frequent and sudden application of the emergency brake—the actual ditching of the car—plowing through sand and clay—not one of these had the slightest effect so far as damaging the KEMP Wheels.

Have you ever heard of another wheel that could stand this treatment?

KEMP Metal Auto Wheels were designed to meet the demand for a safer, more comfortable and more economical Auto Wheel. In the opinion of experts they excel in safety, durability, easy riding action, cleanliness, and appearance. They are not subject to climatic changes as are wood wheels. There is no danger of shrinkage, splintering or warping. Their steel structure resists all strain. **Kemp Wheels are indestructible.** And yet, while incomparably stronger, safer and more serviceable—they **cost less than other wheels.**

Don't Overlook BOOTH No. 30

At the Exhibition

Garage men, dealers, jobbers, etc., should make a point of visiting us at Booth No. 30 in the Accessory Building. We promise them a display that will interest them in more ways than one. Make a note of it now.

**Booth No. 30 - Ground Floor
Accessory Bldg.**



"A Sensational Seller"

JOBBERS, dealers and garage men will find the KEMP Metal Auto Wheel an exceptionally strong seller. It will revolutionize the Auto Wheel industry. At Detroit and London it was the sensation of the Shows. Our booths were full all the time with the keenest of manufacturers, engineers, executives and automobile owners. They were one in pronouncing the KEMP Metal Auto Wheel as being the greatest step forward in auto accessory invention of the past decade. The unanimous opinion was "The KEMP Metal Auto Wheel is in a class by itself and will prove a sensational seller."

Link up now with what promises to be the greatest seller in Auto accessories that was ever produced.

Let us send you now, right at the beginning, full particulars of what the KEMP Metal Auto Wheel is, how it is made, why it is the best wheel on the market, and why it will revolutionize the whole auto wheel industry.

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The Kemp Metal Auto Wheel Co., Limited
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